

AR TARGET SHEET

The following document was too large to scan as one unit; therefore, it has been broken down into sections.

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TITLE Dangerous Waste Portion of RCRA
Permit for Treatment Storage and
Disposal of Dangerous Waste
(Part 2 of 2)

EDMC# 0054507

SECTION 5 of 5

Hanford Facility RCRA Permit Modification
List of Attachments
Attachment 4, Hanford Emergency Management Plan

Replacement Sections

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3.0 OFFSITE RESPONSE INTERFACES

3.1 OVERVIEW

Interfaces and coordination with offsite agencies are important in the planning, preparedness, response, and recovery elements of the Hanford emergency management program. As such, RL shall interface with Federal, tribal, state, local, and private organizations and/or agencies:

- that have a responsibility to protect the public and environment within the EPZs of the Hanford Site;
- with which RL supports as the Regional Coordinating Office for Region 8 (Oregon, Washington, and Alaska); and
- with which RL has entered into special agreements for assistance.

Where appropriate, RL shall develop and maintain agreements to formalize areas of understanding, cooperation, and support with offsite agencies.

3.1.1 Planning and Preparedness

The modes of interface for planning and preparedness activities, as is determined beneficial by the parties, may include:

- coordination of emergency plans and procedures;
- periodic meetings to share information and coordinate activities;
- training opportunities related to offsite responsibilities;
- development of agreements for support to and from offsite agencies;
- participation in annual exercises; and
- development of public information programs.

3.1.2 Response and Recovery

In the event of an emergency on or affecting the Hanford Site, RL shall interface with offsite agencies to ensure coordination and support of response and recovery activities. These interfaces include:

- notification and periodic updates to local jurisdictions within the plume EPZ, states that contain portions of the ingestion EPZ, and other agencies that may be requested to provide assistance (see respective subsections in section 5.0);

Offsite Response Interfaces

- communication and coordination with DOE-HQ;
- RL representation in appropriate offsite emergency centers;
- offsite representation in the DOE Hanford EOC;
- PARs to offsite agencies; and
- event scene interface with offsite responders.

Communications with state and local EOCs are depicted on Figure 3-1.

3.2 FEDERAL AGENCIES**3.2.1 U.S. Department of Energy-Headquarters**

The DOE-HQ Cognizant Secretarial Officers are responsible for ensuring implementation of policy and requirements for activities conducted under their respective areas of cognizance.

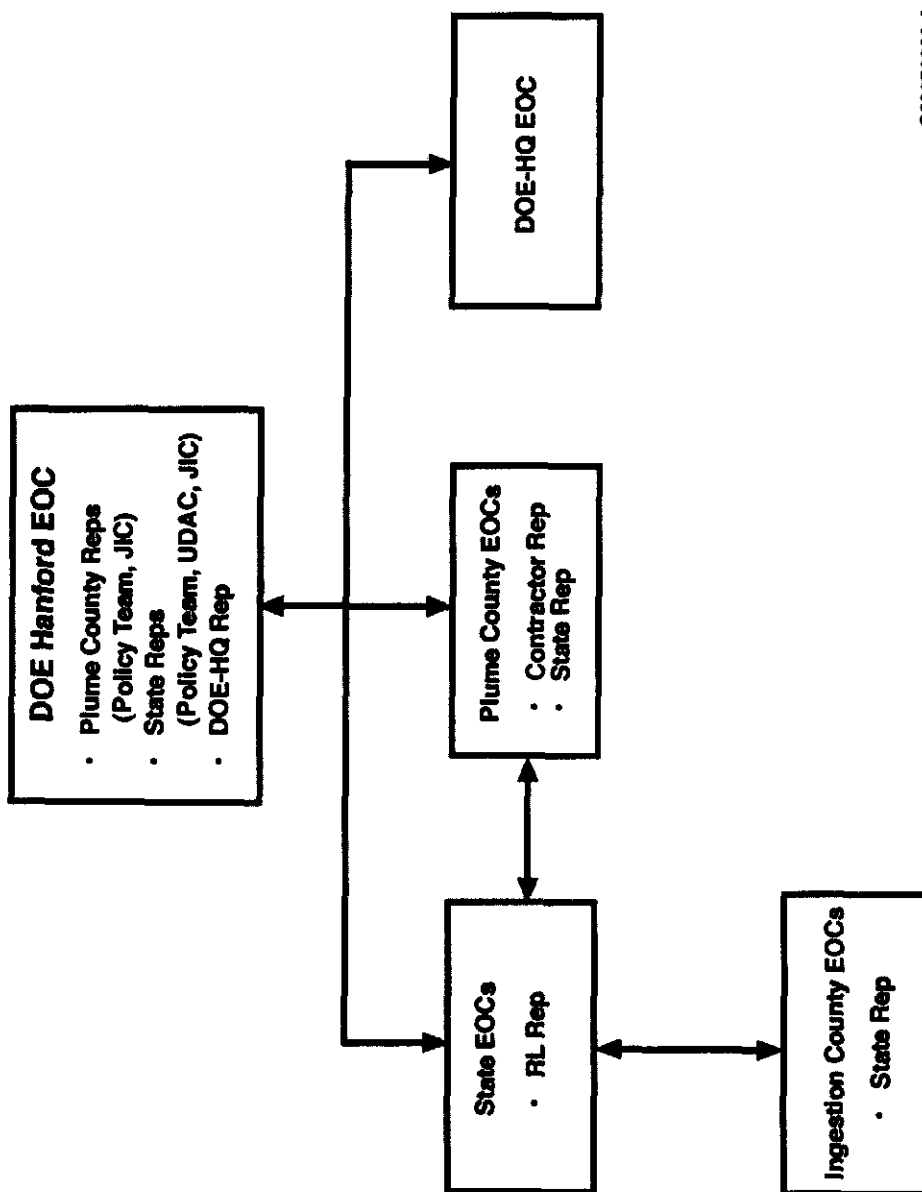
The DOE-HQ EOC serves as the point-of-contact for receipt of all emergency notifications and reports. Accordingly, the DOE-HQ EOC receives, coordinates, and disseminates emergency information to DOE-HQ elements and Program Office emergency points-of-contact, the White House Situation Room, and other Federal agencies. As such, emergency status reports shall be forwarded to the DOE-HQ EOC on a continuing basis until the emergency is terminated.

In the event of an emergency, a DOE-HQ Emergency Management Team is convened to:

- receive information on the facility, site, or area response;
- monitor the Operations/Field Office;
- provide appropriate support and assistance;
- assist with issue resolution; and
- coordinate interagency Congressional, and public information activities at the national level.

RL/ORP shall notify and provide information to the DOE-HQ EOC. Written reports shall be provided to the DOE-HQ EOC as soon as practical, but within 24 hours of emergency classification. A DOE-HQ Site Representative will respond to the DOE Hanford EOC to provide liaison with the DOE-HQ EOC. Upon request from DOE-HQ, RL/ORP shall dispatch a liaison to support activation of the DOE-HQ EOC.

Figure 3-1. Lines of Communication Between Emergency Centers.



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Offsite Response Interfaces

3.2.2 Federal Bureau of Investigation

The role of the FBI is to serve as the primary U.S. Law Enforcement Agency responsible for investigating alleged or suspected violations of the Atomic Energy Act of 1954, as amended, and other Federal statutes. Emergencies of national consequence occurring at the Hanford Site and within the jurisdiction of the U.S. Department of Justice will be communicated to the FBI.

Command of FBI response activities, including plant security forces deployed at the event scene, will be the responsibility of the FBI Special-Agent-in-Charge when a declared security event has occurred. RL will retain command and control of a security event until the FBI assumes this responsibility.

The RL Office of Security and Emergency Services (SES) shall interface and maintain a memorandum of understanding with the FBI.

3.2.3 U.S. Coast Guard

The U.S. Coast Guard (USCG) (through the Thirteenth District Commander in Seattle, Washington and the Captain of the Port in Portland, Oregon) may regulate activities on navigable waters within the Hanford Site, when necessary, to prevent harm to persons, property, and the environment in or on those waters.

When notified of a Site Area or General Emergency, the USCG will close the appropriate portion of the Columbia River and make a broadcast to mariners.

In the event of an emergency, the ONC will make notifications and provide information to the USCG in Portland, Oregon.

3.2.4 U.S. Environmental Protection Agency

Under the provisions of the Federal Radiological Emergency Response Plan (FRERP), the EPA shall assume the lead Federal agency responsibility for coordinating the intermediate and long-term offsite radiation monitoring activities.

In the event of an emergency, the DOE Hanford EOC shall notify and provide information to the EPA Region 10 in Seattle, Washington.

3.2.5 Federal Aviation Administration

The Federal Aviation Administration (FAA) may make flight restrictions for aircraft under their jurisdiction over the Hanford Site.

Offsite Response Interfaces

The ONC will notify and provide information to the FAA Seattle Center. At a Site Area or General Emergency the ONC may request the FAA to impose flight restrictions over the Hanford Site.

3.2.6 Federal Emergency Management Agency

The Federal Emergency Management Agency (FEMA) is responsible for coordinating Federal assistance (other than monitoring resources) to the states if requested. Under the provisions of the FRERP, FEMA coordinates the offsite (nontechnical) response.

At the time of a declaration of an emergency, the DOE Hanford EOC notifies and provides information to the FEMA Region 10 office in Bothell, Washington.

3.3 STATE GOVERNMENT

States, along with local governments, share the responsibility for the protection of the public and the environment. The responsibilities and concept of operations for state agencies are described in the emergency response plans of each state.

RL shall work with the states of Washington and Oregon to assist in development of their program and response plans for an emergency at the Hanford Site. Periodic meetings will be conducted with the states to coordinate plans and share information. General descriptions of emergency responsibilities as well as areas of cooperation and understanding between RL and the states are delineated in memoranda of understanding (MOU). Copies of the MOUs are provided in Appendix B.

3.3.1 The State of Washington

The Governor of Washington is responsible for command and control of state resources to maintain and preserve life, property, and the environment in Washington. The lead agency for emergency planning and response activities is the Emergency Management Division of the Military Department. Other state agencies that participate in the planning process and have emergency response roles include the:

- Department of Health;
- Department of Agriculture;
- State Patrol;
- Department of Ecology; and
- Department of Transportation.

An emergency response plan is maintained by the Emergency Management Division that describes the concept of operations and roles and responsibilities of the state agencies. Emergency procedures are maintained by each state agency.

Responsibilities of the state of Washington include:

- providing a 24-hour single point of contact for the receipt of emergency notifications from RL/ORP;
- disseminating information to potentially affected counties within the plume and ingestion EPZs;
- coordinating ingestion protective action decisions and public information with the counties, the state of Oregon, and RL;
- providing assistance to counties as requested;
- evaluating offsite emergency PARs made to plume EPZ counties;
- making protective action decisions to protect public health from ingestion-related impacts, such as contamination of the food chain;
- performing field environmental radiological monitoring and dose assessments;
- providing guidance on emergency worker exposure and authorizing emergency workers to exceed protective action guides;
- implementing food, milk, and animal-feed control measures; and
- requesting Federal assistance as required.

3.3.2 The State of Oregon

The Governor of Oregon is responsible for directing and controlling state activities to protect the lives and property of Oregon citizens. The lead agency for Hanford Site emergency planning is the Oregon Office of Energy. Other state agencies that participate in the planning process and have emergency response roles include the:

- State Public Information Officer;
- Health Division;
- Emergency Management Division;
- Department of Agriculture;
- Oregon State University Radiation Center;
- Military Department;
- State Police; and
- State Highway Division.

Offsite Response Interfaces

An emergency response plan is maintained by the Oregon Office of Energy that describes the concept of operations and roles and responsibilities of state agencies. Emergency procedures are maintained by each state agency.

Responsibilities of the state of Oregon include:

- providing a 24-hour single point of contact for the receipt of emergency notifications from RL/ORP;
- making protective action decisions for the state of Oregon;
- coordinating protective action decisions and public information with counties, the state of Washington, and RL;
- coordinating state and local emergency response within the state of Oregon;
- performing field environmental radiological monitoring and dose assessments;
- providing guidance on emergency worker exposure and authorizing emergency workers to exceed protective action guides;
- providing assistance to Oregon counties within the ingestion EPZ;
- implementing food, milk, and animal-feed control measures; and
- requesting Federal assistance as required.

3.4 LOCAL ORGANIZATIONS

Cities and counties are responsible for protecting the lives and property of their residents. The responsibilities and concept of operations for local governments are described in the emergency response plans of each jurisdiction.

RL shall work with local emergency response organizations through the county and state emergency management organizations. Generally, RL shall interface directly with emergency response and planning organizations providing service to those areas within a plume EPZ of a Hanford Site facility. Interface with those jurisdictions within the ingestion EPZ generally shall be accomplished through the state emergency management organization. To accomplish the necessary close coordination with local agencies, periodic meetings shall be conducted to share information and discuss concerns.

3.4.1 Plume Emergency Planning Zone Counties

Portions of Benton, Franklin, and Grant Counties are within plume EPZs of a Hanford Site facility. The Boards of County Commissioners are responsible for making emergency protective action decisions and implementing emergency response actions, as necessary, to protect their residents outside the Hanford Site boundary. The lead agency for emergency planning and coordination of emergency response is the county emergency management agency. County emergency response plans and procedures are developed by the emergency management agencies, working with county, city, and volunteer emergency response agencies, such as:

- law enforcement;
- fire and emergency medical;
- public works/road departments;
- hospitals; and
- American Red Cross.

The emergency responsibilities of the plume EPZ counties include:

- making and implementing protective action decisions to protect citizens who live within the plume EPZ;
- implementing protective action decisions, made by the state of Washington, for ingestion-related impacts to residents within the ingestion EPZ;
- disseminating alert and warnings to the public and providing emergency public information; and
- coordinating response actions and public information with neighboring counties, the state of Washington, and RL.

RL maintains agreements with Benton, Franklin, and Grant Counties that outline the areas of responsibility and cooperation (see Appendix B).

3.4.1.1 Law Enforcement. RL SES interfaces with local law enforcement agencies for support to the Hanford Site during emergencies. Via a contractual agreement, the Benton County Sheriff's Office provides law enforcement on the Hanford Site (i.e., traffic enforcement and criminal investigation), and assists in access control; and, as such, coordinates activities with RL SES and the Hanford Patrol.

RL SES maintains memorandums of understanding with the law enforcement agencies of Kennewick, Richland, West Richland, Benton County, Franklin County, and the state of Washington.

3.4.1.2 Fire and Emergency Medical. The Hanford Fire Department is signatory to the Tri-County Mutual Aid Agreement for fire agencies. The agreement, signed by 11 local fire agencies, provides mutual aid for fire or medical emergencies.

Offsite Response Interfaces

The Hanford Fire Department meets regularly with local fire agencies. The Hanford Fire Department and HEHF Representatives meet routinely with emergency medical service agencies to coordinate and share information.

3.4.1.3 Hospitals. RL maintains agreements with local hospitals, which provide for the care of injured, contaminated (chemical or radiological) Hanford Site personnel. These hospitals include:

- Our Lady of Lourdes Health Care Center;
- Kennewick General Hospital; and
- Kadlec Medical Center.

RL shall provide for training and exercise support, as needed, related to the services provided to the Hanford Site. HEHF shall provide expertise on radiological decontamination or chemical exposure and treatment as requested.

3.4.2 Ingestion Emergency Planning Zone Counties

Counties within the ingestion EPZ of the Hanford Site are responsible to implement measures to protect their residents from potential ingestion related impacts. In the state of Washington, the counties of Adams, Benton, Franklin, Grant, Kittitas, Klickitat, Walla Walla, and Yakima are within the 50-mile (80-kilometer) ingestion EPZ. In the state of Oregon, the counties of Morrow and Umatilla are included. Ingestion EPZ counties have emergency response plans that describe their responsibilities in the event of an emergency at the Hanford Site.

RL shall coordinate emergency planning and preparedness for ingestion counties through the Washington State Emergency Management Division and the Oregon Office of Energy. Ingestion county responsibilities include:

- coordinating with the state and implementing decisions regarding protective measures for its residents within the ingestion EPZ; and
- consulting with the respective state EOC on the identification of access control points, food control areas, food control stations, and strategies for relocation, restoration, and recovery in contaminated areas.

3.5 TRIBAL ORGANIZATIONS

RL shall provide appropriate information to the impacted tribal organizations to coordinate planning for ingestion-related response actions of the tribe(s).

3.6 PRIVATE ORGANIZATIONS

The Hanford Site emergency management program shall address private facilities on or near the site. These facilities may be impacted by an emergency at the Hanford Site, or may impact Hanford Site facilities if they experience an emergency.

RL shall coordinate emergency planning and preparedness activities with onsite private facilities (namely Energy Northwest, US Ecology, and Richland Specialty Extrusions). In the event of an emergency at a Hanford Site facility, onsite private facilities will receive notifications and information from RL.

Where emergencies at facilities operated by private organizations may impact the Hanford Site, RL shall ensure that the emergency management program addresses actions that must be taken to protect site workers and facilities.

Areas of cooperation with private organizations shall be documented in memorandums of understanding.

3.7 MEMORANDA OF UNDERSTANDING

RL shall develop and implement mutual assistance agreements with offsite agencies to document areas of cooperation and assistance when appropriate and as identified in Federal, state, and local regulations (see Table 3-1).

RL SES is responsible for executing and maintaining MOUs related to security and emergency preparedness. The Hanford Fire Department shall execute and maintain MOUs within its area of responsibility. MOUs shall be reviewed annually and revised as needed.

Copies of MOUs shall be provided to the CSO through their inclusion in Appendix B of this plan.

Table 3-1. Memorandums of Understanding

PARTIES	SERVICES/AREAS OF COOPERATION	POINTS OF CONTACT	CONSTRAINTS	DATE	EXPIRATION DATE	WHERE ON FILE
State of Washington	Document areas of cooperation between the parties in the planning for and response to emergencies at the Hanford Site.	Washington Emergency Management Division	None	09/10/96	Continue until canceled by either party upon 30 days written notice to the other.	RL SES
State of Oregon	Document areas of cooperation between the state of Oregon and RL in the planning for and providing notification and interface in the event of an incident on the Hanford Site.	Oregon Department of Energy	None	12/02/86	Continue until canceled by either party by written notice to the other Amendments or modifications to this Agreement may be made upon written agreement by both parties to the Amendment.	RL SES
Benton County	Document areas of cooperation between the parties in the planning for and response to emergencies at the Hanford Site.	Benton County Emergency Management	None	03/16/00	Continue until canceled by either party by written notice to the other.	RL SES
Franklin County	Document areas of cooperation between the parties in the planning for and response to emergencies at the Hanford Site.	Franklin County Emergency Management	None	01/20/00	Continue until canceled by either party by written notice to the other.	RL SES
Grant County	Document areas of cooperation between the parties in the planning for and response to emergencies at the Hanford Site.	Grant County Emergency Management	None	05/25/00	Continue until canceled by either party by written notice to the other.	RL SES
Energy Northwest	Document areas of cooperation between the parties in the planning for and response to emergencies at the Hanford Site.	Energy Northwest Emergency Preparedness	The specific areas of assistance will be provided based upon availability, and are limited to those emergency actions necessary to protect onsite personnel, the public health and safety, and the environment in the event of a major emergency at the Hanford Site or Energy Northwest.	09/07/00	Continue until canceled by either of the parties upon 30 days written notice to the other party.	RL SES
Energy Northwest and HEHF	Treatment of a significantly contaminated and injured person.	Energy Northwest Emergency Preparedness and HEHF	None	09/08/00	Continue until canceled by one or more of the parties upon 30 days written notice to the other(s).	RL SES

Table 3-1. Memorandums of Understanding

PARTIES	SERVICES/AREAS OF COOPERATION	POINTS OF CONTACT	CONSTRAINTS	DATE	EXPIRATION DATE	WHERE ON FILE
Siemens Power Corporation (SPC)	Establishes means by which RL can provide consequence assessment and meteorological information to SPC during an emergency at the SPC plant in Richland, Washington	SPC	Emergencies affecting the Hanford Site or Hanford facilities takes precedence over all other uses of the UDAC facilities and/or staff.	01/19/00	Remain in effect for five years from effective date, at which time it shall be reviewed and renegotiated, reissued, or terminated. Either party may withdraw upon 30 days written notice.	RL SES
Siemens Power Corporation (SPC) and HEHF	Treatment of a significantly contaminated and slightly injured person.	SPC and HEHF	SPC agrees to undertake all costs and expenses incurred that directly result from this agreement.	01/03/00	Continue until canceled by one or more of the parties by written notice to the other(s).	RL SES
Allied Technology Group, Inc. (ATG) and HEHF	Treatment of a significantly contaminated and slightly injured person.	ATG and HEHF	ATG agrees to undertake all costs and expenses incurred that directly result from this agreement.	12/22/99	Continue until canceled by one or more of the parties by written notice to the other(s).	RL SES
National Weather Service	Sharing Meteorological Information.	NWS Western Regional Headquarters.	None	10/05/94	Agreement may be terminated by either party upon thirty days written notice to the other party.	RL SES
Our Lady of Lourdes Hospital (OLOL) Pasco, Washington	Significantly injured, contaminated persons will be admitted to facility for appropriate medical care.	OLOL Administrator	The responsibilities of OLOL will be limited to activities performed at the hospital.	08/17/98	Arrangements may be terminated by OLOL or by RL upon written notice to the other, which notice shall not become effective for at least 30 days after the date thereof.	RL SES
Kadlec Medical Center (KMC) Richland, Washington	Significantly injured, contaminated persons will be admitted to facility for appropriate medical care.	KMC Administrator	KMC will be limited to activities performed at the hospital and at the Emergency Decontamination Facility.	08/17/98	Arrangements may be terminated by KMC or by RL upon written notice to the other, which notice shall not become effective for at least 30 days after the date thereof.	RL SES
Kennewick General Hospital (KGH) Kennewick, Washington	Significantly injured, contaminated persons will be admitted to facility for appropriate medical care.	KGH Administrator	KGH will be limited to activities performed at the hospital.	08/17/98	Arrangements may be terminated by KGH or by RL upon written notice to the other, which notice shall not become effective for at least 30 days after the date thereof.	RL SES

Table 3-1. Memorandums of Understanding

PARTIES	SERVICES/AREAS OF COOPERATION	POINTS OF CONTACT	CONSTRAINTS	DATE	EXPIRATION DATE	WHERE ON FILE
Tri-County Mutual Aid Agreement	Provide mutual aid to parties hereto desire to augment the fire and emergency medical protection available in their establishments, districts, agencies, and municipalities in the event of large fires or conflagrations or other disaster.	Hanford Fire Department	Assistance under the agreement is not mandatory.	02/05/98	Remain in full force and effect until canceled by mutual agreement of the parties hereto or by written notice by one party to the other party giving ten (10) days notice of said cancellation.	Hanford Fire Department
Richland Police Department	Mutual law enforcement assistance.	Richland Police Department	Assistance will be provided subject to the provision of the agreement and any other conditions as the parties may agree.	03/14/00	Indefinite duration.	RL SES
West Richland Police Department	Mutual law enforcement assistance.	West Richland Police Department	Assistance will be provided subject to the provision of the agreement and any other conditions as the parties may agree.	03/14/00	Indefinite duration.	RL SES
Kennewick Police Department	Mutual law enforcement assistance.	Kennewick Police Department	Assistance will be provided subject to the provision of the agreement and any other conditions as the parties may agree.	03/14/00	Indefinite duration.	RL SES
Benton County Sheriff	Mutual law enforcement assistance.	Benton County Sheriff	Assistance will be provided subject to the provision of the agreement and any other conditions as the parties may agree.	03/14/00	Indefinite duration.	RL SES
Franklin County Sheriff	Mutual law enforcement assistance.	Franklin County Sheriff	Assistance will be provided subject to the provision of the agreement and any other conditions as the parties may agree.	03/14/00	Indefinite duration.	RL SES
Washington State Patrol	Mutual law enforcement assistance.	Washington State Patrol	Assistance will be provided subject to the provision of the agreement and any other conditions as the parties may agree.	02/14/00	Indefinite duration.	RL SES

Offsite Response Interfaces

Table 3-1. Memorandums of Understanding

PARTIES	SERVICES/AREAS OF COOPERATION	POINTS OF CONTACT	CONSTRAINTS	DATE	EXPIRATION DATE	WHERE ON FILE
Adams County Sheriff	Mutual law enforcement assistance.	Adams County Sheriff	Assistance will be provided subject to the provision of the agreement and any other conditions as the parties may agree.	03/27/00	Indefinite duration.	RL SES
Grant County Sheriff	Mutual law enforcement assistance.	Grant County Sheriff	Assistance will be provided subject to the provision of the agreement and any other conditions as the parties may agree.	03/14/00	Indefinite duration.	RL SES
Pasco Police Department	Mutual law enforcement assistance.	Pasco Police Department	Assistance will be provided subject to the provision of the agreement and any other conditions as the parties may agree.	04/03/00	Indefinite duration.	RL SES

7.0 PROTECTIVE ACTIONS AND REENTRY

An important part of the emergency management program at the Hanford Site is the planning for physical measures that may be needed to protect workers and the public from adverse health effects resulting from the release of hazardous materials. The initial response to any emergency will be to immediately protect the health and safety of persons in the immediate area. Identification of released material is essential to determine appropriate protective actions. Containment, treatment, and disposal assessment will be the secondary responses. This section describes the areas that may be impacted and the protective actions that may be needed.

7.1 EMERGENCY PLANNING ZONES

Emergencies at site facilities may require actions only on the Hanford Site or may affect offsite areas. The Hanford Site emergency management program uses the EPZ concept to focus emergency planning activities. The EPZs are designated areas, based upon hazards assessments, in which predetermined protective actions may be required.

The extent of a planning zone is based on the distance that a particular substance could expect to be dispersed in a particular form. The two types of exposure "pathways" for both radiological and nonradiological hazardous materials are delineated below.

- **Plume Exposure Pathways:** Exposure to a passing cloud, or plume, of the substance resulting in direct contact of the substance with the exterior of the body or through inhalation of the substance.
- **Ingestion Exposure Pathway:** Dispersal of the substance to various internal organs following the ingestion (eating or drinking) of contaminated foodstuffs or water.

RL shall develop EPZs, as determined necessary by hazards assessments, and submit them to affected states and counties for their use in emergency planning. Additionally, approved EPZs shall be submitted to the Assistant Secretary for Environment, Safety, and Health; the Director of Emergency Management; and the CSO.

7.1.1 Plume Exposure Pathway Emergency Planning Zones

The extent of the plume exposure EPZ for radiological hazards is based upon the potential for exposure by the:

- inhalation exposure from the passing radioactive plume; and/or
- whole body external exposure to beta or gamma radiation from the plume and from deposited radioactive material.

Protective Actions and Reentry

The extent of the plume exposure EPZ for nonradiological hazardous materials is based upon the potential for exposure by:

- inhalation from the plume; and/or
- skin or eye contact with the plume.

Either of these exposure routes could dominate, depending upon the toxicological and physicochemical characteristics of the hazardous material.

The plume exposure pathway EPZ includes the area of the hazardous material spill, areas immediately surrounding the spill or release, and downwind areas projected to receive significant concentrations of hazardous materials. Plume exposure EPZs have been determined for each facility based on the radiological, nonradiological, or mixed (radiological and nonradiological) hazards. Area plume exposure EPZs (i.e., 100, 200, 300, and 400 Areas) are determined by the largest facility EPZ in that area. The plume exposure EPZs are described in Table 7-1.

Figure 7-1 shows the plume exposure EPZs for geographical areas on the Hanford Site with potential offsite consequences.

Table 7-1. Hanford Site Area Plume Emergency Planning Zones.

LOCATION	TYPE OF HAZARD DETERMINING EPZ SIZE	RADIUS OF ZONE ¹
100K Area	Radiological	8.0 kilometers/5.0 miles
100N Area	Radiological	5.0 kilometers/3.0 miles
200E/W Area	Radiological	16 kilometers/10.0 miles
300 Area	Radiological	5.0 kilometers/3.0 miles
400 Area	Radiological	7.2 kilometers/4.5 miles
¹ For the purposes of EPZ definition, the receptor location is defined as the south and/or west shore of the Columbia River.		

7.1.2 Ingestion Exposure Pathway Emergency Planning Zone

The ingestion exposure pathway EPZ for radiological and nonradiological incidents involving Hanford Site facilities corresponds to the 50-mile (80-kilometer) EPZ for Energy Northwest (Columbia Generating Station). The principal exposure from this pathway would be from ingestion of contaminated water or foods such as milk, fresh vegetables, or aquatic foodstuffs. Facility, onsite, and offsite populations may be subject to exposure through the ingestion exposure pathway. The ingestion exposure EPZ is shown on Figure 7-2.

Figure 7-1. Plume Exposure Emergency Planning Zones.

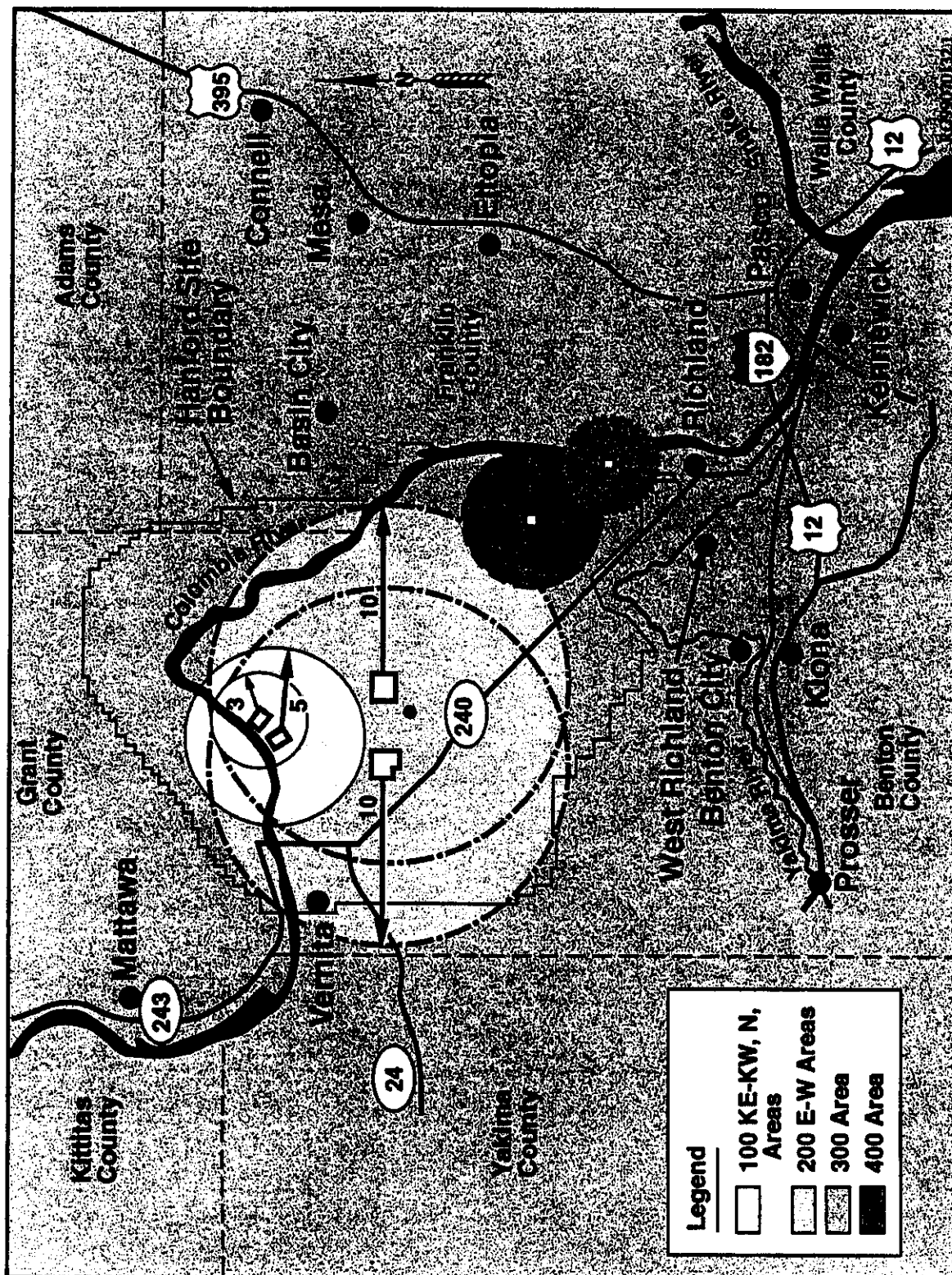
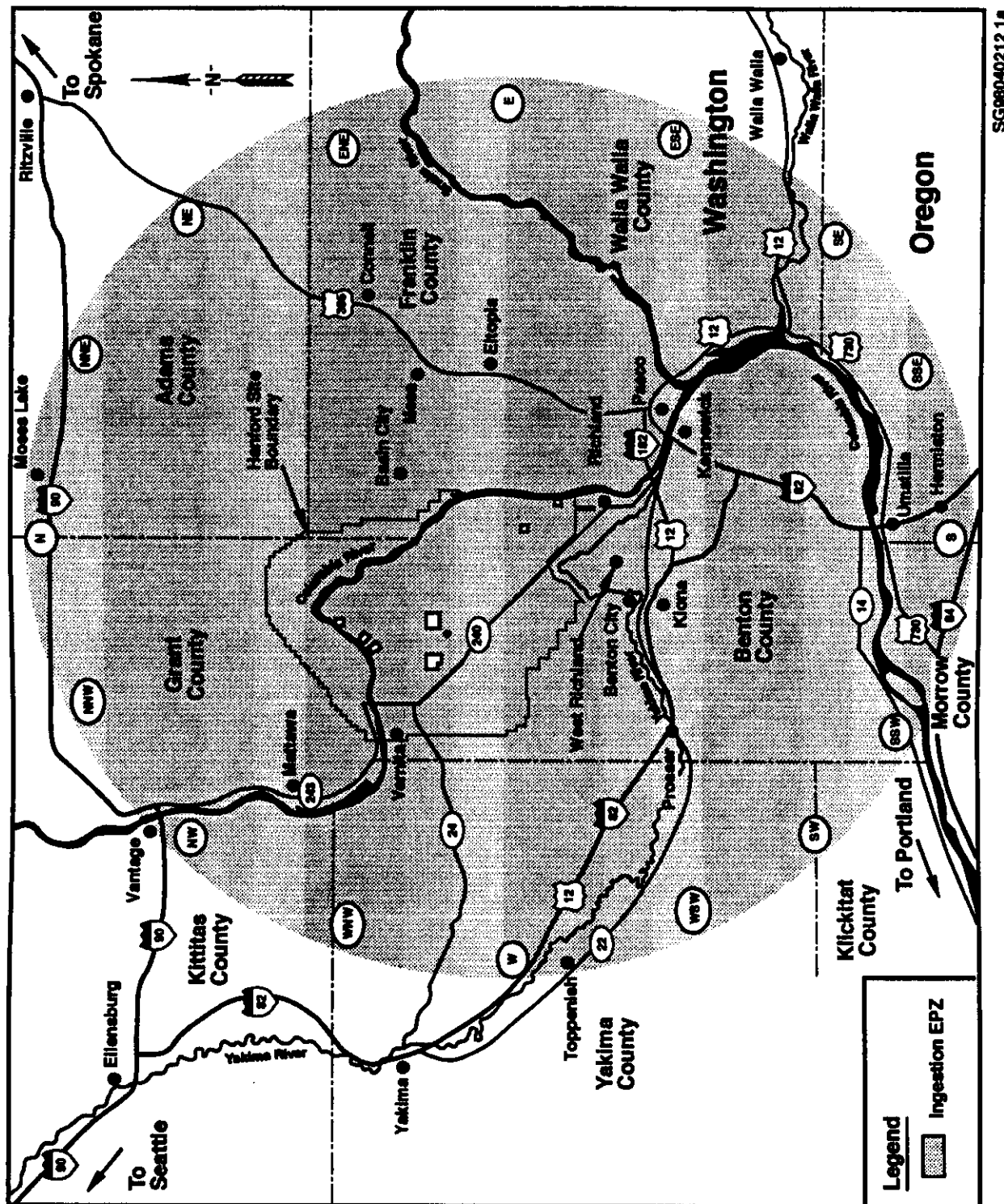


Figure 7-2. Ingestion Exposure Emergency Planning Zone.



Protective Actions and Reentry

Offsite protective actions within the ingestion exposure pathway EPZ are the responsibility of the counties and the states. The states of Washington and Oregon are responsible for developing and applying derived intervention levels for implementation of protective actions within the ingestion planning zone.

These intervention levels are based on Food and Drug Administration (FDA) guidelines and are described in respective state procedures. The intervention levels are stated in terms of concentrations of radioactivity on the ground, in the soil, and in vegetation, milk, and water, which guide emergency responders in implementation of interdiction of foodstuffs to preclude exceeding appropriate PAGs.

7.2 PROTECTIVE ACTIONS

Protective actions are those actions taken to preclude or reduce the exposure of individuals to hazardous materials following an accidental release at the Hanford Site.

Protective actions shall be predetermined for onsite personnel and the public and shall include:

- methods for controlling, monitoring, and maintaining records of personnel exposures to hazardous materials (radiological and nonradiological);
- plans for timely sheltering and/or evacuation of workers;
- methods for controlling access to contaminated areas and for decontaminating personnel or equipment exiting the area;
- actions to be taken to increase the effectiveness of protective actions (i.e., heating, ventilation, and air conditioning shutdown during sheltering;
- methods for providing timely protective action recommendations, such as sheltering, evacuation, relocation, and food control, to appropriate offsite agencies;
- PAGs and ERPGs, prepared in conformance with DOE-approved guidance applicable to the actual or potential release of hazardous materials to the environment, for use in protective action decision making; and
- the administration of medications.

7.2.1 Protective Action Guides

PAGs are used to determine the appropriate PAR. The RL directs the use of the PAGs adopted by the states of Washington and Oregon, which are based on the PAGs published in the EPA 400 manual, Manual of Protective Action Guides and Protective Actions For Nuclear Incidents (EPA 1992). These PAGs are intended to apply to projected doses from exposures

Protective Actions and Reentry

from airborne releases of radioactive materials and subsequent depositions during the early, intermediate, and late phases of an accident. The pathways considered include external gamma and beta dose from direct exposure to airborne materials and from deposited material, and the committed dose to internal organs from inhalation of radioactive material.

The projected dose values for initiating protective actions (evacuation or sheltering) specified by the states of Washington and Oregon is 1 rem total effective dose equivalent, where the projected dose represents the sum of the effective dose equivalent resulting from exposure to external sources and the committed effective dose equivalent from all significant inhalation pathways during the early phase. The PAG values for committed dose equivalent to the thyroid and the skin are 5 and 50 times larger, respectively.

The EPA PAGs are stated in terms of committed dose. Dose incurred prior to initiation of protective action (and after the early phase of an event) normally are not included when considering whether or not to take protective actions. In other words, it is intended that the PAG values be compared to the dose that can be avoided by taking protective actions.

The PAG acronym used in this plan shall be interpreted to mean where the total effective dose equivalent of 1 rem to standard man is the sum of the effective dose equivalent from exposure to external sources and the committed effective dose equivalent from inhalation during the early phase.

Response levels corresponding to these PAGs shall be derived for the specific radionuclides, foodstuffs, and animal feeds of interest according to the FDA recommendations.

7.2.2 Emergency Response Planning Guidelines for Nonradiological Releases

The Hanford Site has adopted the ERPGs developed and approved by the American Industrial Hygienists Association (AIHA). The ERPGs shall be used to determine the appropriate emergency class for exposures to nonradiological releases. The Temporary Emergency Exposure Limit (TEEL) values developed by the Chemical Exposures Working Group of the DOE Subcommittee on Consequence Assessment and Protective Actions (SCAPA) are used for chemicals that do not have ERPG values. Within the ERPG system, the three values are defined below for each material.

7.2.2.1 Emergency Response Planning Guidelines 1 (ERPG-1). The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour without experiencing other than mild transient adverse health effects or perceiving a clearly defined objectionable odor.

7.2.2.2 Emergency Response Planning Guidelines 2 (ERPG-2). The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour without experiencing or developing irreversible or other serious health effects or symptoms that could impair their abilities to take protective action.

7.2.2.3 Emergency Response Planning Guidelines 3 (ERPG-3). The maximum airborne concentration below which it is believed that nearly all individuals could be exposed for up to one hour without experiencing or developing life-threatening health effects.

For purposes of applying the DOE O 151.1 Operational Emergency classification definitions, the terms ERPG and appropriate ERPG exposure levels shall be interpreted to mean a 15-minute time weighted average concentration of the substance in air that equals or exceeds the published ERPG-2 values, or its alternative value, for that substance.

For the purpose of onsite protective actions in response to nonradiological releases, the protective actions prescribed in the 1996 North American Emergency Response Guidebook shall be implemented as applicable.

7.2.3 Onsite Protective Actions

7.2.3.1 DOE Hanford Emergency Operations Center. The DOE Hanford EOC emergency procedures shall detail response actions to be taken in order to prevent or reduce exposures.

These procedures shall include provisions for:

- emergency communications to site personnel;
- decontamination of personnel and equipment, including those evacuated from the site, as appropriate;
- determination of the area surrounding the affected facility; and
- area or site evacuation planning.

7.2.3.2 Facilities.

7.2.3.2.1 Administrative Facilities. Administrative facilities shall maintain an emergency response capability that enables them to implement appropriate protective actions when ordered and to respond to standard facility emergencies (e.g., fires). These capabilities shall include provisions for:

- facility take cover to include shutdown, when appropriate, of heating, ventilation, and air-conditioning systems;
- facility evacuation including persons with permanent or temporary disabilities and transient personnel (i.e., persons not normally assigned to the facility);
- emergency communications to facility personnel;
- identification of potentially exposed personnel and ensuring they receive appropriate follow-up evaluation;

Protective Actions and Reentry

- predetermined facility evacuation routes, staging areas, and transportation in the event of an area or site evacuation; and
- personnel accountability per subsection 7.2.3.4.

Each employee is responsible for his/her own health and safety and for taking appropriate actions in accordance with emergency signals and/or instructions.

7.2.3.2.2 Nonhazardous and Hazardous Facilities. Site contractor emergency procedures for nonhazardous and hazardous facilities shall provide for the immediate actions to be taken to prevent or reduce exposures. These procedures, which are implemented by the BED/BW or IC, shall include provisions for:

- facility take cover to include shutdown, when appropriate, of heating, ventilation, and air-conditioning systems;
- facility evacuation including persons with permanent or temporary disabilities and transient personnel (i.e., persons not normally assigned to the facility);
- ensuring that facility emergency response personnel are equipped with adequate dosimetry equipment to allow for the accurate evaluation of their exposures;
- controlling and monitoring radiation and hazardous material exposures to facility emergency personnel as low as reasonably achievable (ALARA);
- emergency communications to facility personnel;
- informing the POC whenever facility take cover or evacuation sirens are activated;
- shutdown of operations or other operating actions;
- identification of essential personnel;
- identification of potentially exposed personnel and ensuring they receive appropriate follow-up evaluation;
- predetermined facility evacuation routes, staging areas, and transportation in the event of an area or site evacuation;
- protective equipment, monitoring, and decontamination capabilities for hazardous materials present at the facility;
- access control; and
- personnel accountability per subsection 7.2.3.4.

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Each employee is responsible for his/her own health and safety and for taking appropriate actions in accordance with emergency signals and/or instructions.

7.2.3.2.3 Lockdown. Lockdown is a security term and is not an action designed to protect personnel. The intent of a lockdown is to enable security forces to better protect special nuclear materials in the event that a security barrier has been compromised. Currently, implementation of a lockdown is only applicable to the Plutonium Finishing Plant complex. Lockdown does not preclude implementation of protective actions. Protective actions during lockdown activities shall be coordinated between the BED and security forces. If the take cover alarm sounds during a lockdown, all personnel, including security personnel without proper personal protective equipment, will move to an indoor location and a security perimeter will be established.

7.2.3.3 Remote Locations. Site contractors shall ensure processes are established to effectively communicate protective actions to personnel assigned to work in remote locations (e.g., personnel in vehicles or at locations without alarm/siren capabilities).

7.2.3.4 Personnel Accountability. Each facility on the Hanford Site shall provide for an evacuation accountability system commensurate with the hazards associated with the facility. The accountability shall be conducted immediately after emergency evacuation has been completed to ensure that all employees and transient personnel (i.e., persons not normally assigned to the facility) are properly accounted for.

7.2.3.5 Access Control. During an emergency, access will be controlled to impacted areas. Procedures shall be maintained to allow emergency personnel access to controlled areas as necessary. Access to the ICP or event scene requires the approval of the IC. Site contractors shall maintain access control procedures that include logging entries, providing dose assessments, and maintaining exposure records for all emergency workers.

7.2.3.6 Area or Site Take Cover. Emergency procedures/checklists shall be maintained by Hanford Patrol and RL/ORP to provide instructions for implementing an area or site take cover. These procedures/checklists shall include, as a minimum, criteria for the implementation, notification, and termination of an area or site take cover. Hanford Patrol shall be responsible for implementing initial take cover protective actions until the DOE Hanford EOC is operational.

7.2.3.7 Area or Site Evacuation. Emergency procedures/checklists shall be maintained by Hanford Patrol and RL/ORP to provide instructions for implementing an area or site emergency evacuation. These procedures/checklists shall include, as a minimum, criteria for establishing an evacuation plan, determining the evacuation routes (primary and alternate), notifying facilities, and coordinating and conducting the actual evacuation. Hanford Patrol shall be responsible for implementing initial evacuation protective actions until the DOE Hanford EOC is operational.

Evacuation routes for the Hanford Site are shown in Figure 7-3. Specific routes will be determined at the time of the event based on event magnitude, location, and meteorology. Private and government vehicles are available to provide transportation in the event of an emergency evacuation. Periodic drills and exercises are performed to ensure that an adequate employee-to-vehicle ratio is maintained to provide a timely and safe evacuation of personnel.

7.2.4 Offsite Protective Actions

Initial PARs appropriate for each emergency classification have been predetermined by the RL and adjacent counties. These initial, preplanned PARs, as indicated by the event classification and location, shall be included in the initial notification to offsite agencies. The determination for the need for additional PARs shall be based on consequence assessments that indicate when a PAG or ERPG value may be exceeded at the Hanford Site boundary. RL/ORP notifications to the state and the counties adjacent to the site are delineated in subsection 5.1.1.2.1. The notification shall include PARs as appropriate.

Immediate protective actions decisions within the plume exposure pathway are the responsibility of the appropriate county. Protective action decisions by offsite authorities within the plume EPZ may include access control, sheltering, and evacuation.

Protective action decision notification to populations within the plume EPZ is the responsibility of the counties and is primarily provided using the Emergency Alert System (EAS). Benton and Franklin County residents within the radiological plume EPZs receive the EAS messages via tone alert radios in their homes. Grant County residents within the radiological plume EPZs are notified to tune to the EAS via telephone calls from the Hanford Site automated ENS. Persons on or along the Columbia River are alerted by sirens or boat patrols. County emergency plans and procedures address protective action decisions, public warning, evacuation routes, and assistance centers.

Protective action decisions for the ingestion exposure EPZ are the responsibility of the state. The DOE Hanford EOC shall provide the states with hazards assessment data necessary to identify areas where persons must be relocated or where food control is necessary. The states will coordinate implementation of the protective action with the impacted counties.

Notification to populations with the ingestion EPZ shall be accomplished by affected counties and the states using the EAS, as appropriate, and news media reports. State and county emergency workers shall follow protective guidance as established by the states.

7.2.5 Protective Equipment and Supplies

Protective responses for minimizing radiological exposure and contamination include the use of protective clothing and respiratory equipment. As applicable, each site contractor shall develop procedures to identify the location, issuance and use of emergency equipment.

Additionally, HEHF shall be responsible for obtaining and approving the use of a thyroid blocking agent, such as potassium iodide, which may be used by Hanford emergency workers in the event of a release of radioiodine from Energy Northwest's Columbia Generating Station. Each site employer shall determine their need for the use of a thyroid blocking agent and, as applicable in coordination with the Site Medical Director, develop procedures for acquiring and administration of the agent during Energy Northwest events involving the need for radioiodine protection.

7.3 REENTRY

Reentry is the act of reentering an evacuated area for the purpose of performing emergency activities or to assess facility damage for the purpose of determining if the emergency can be terminated and/or for determining the extent of required recovery activities. Reentry can be performed at any time before termination of the emergency and during recovery activities.

Prior to event termination, the BED and IC shall be responsible for determining appropriate protective measures for personnel reentering the event facility or area and for authorizing reentry. Reentry planning shall include contingency planning to ensure the safety of reentry personnel, such as planning for the rescue of reentry teams. All individuals involved in reentry shall receive a hazards/safety briefing prior to emergency response activities consistent with Federal, state, and local laws or regulations.

The event contractor will determine the accessibility of the site areas during and after the emergency and evaluate the advisability of reentry operations as required. Current operating records and other essential information for evaluating the emergency may be used in making these decisions.

During recovery, the Onsite Recovery Manager is responsible for reentry authorization.

7.3.1 Reentry Exposure Considerations

The means shall exist for estimating exposure to hazardous materials (radiological and nonradiological) and for protecting workers and the general public from exposure during reentry and recovery activities.

The guiding principle is to minimize the risk of injury to those persons participating in the rescue and recovery activities; however, this principle must be balanced against the immediate objective of retrieving a deceased victim, protecting property, saving lives, or mitigating a secondary event.

Individuals responsible for authorizing reentry must carefully examine any proposed actions involving further hazardous or radioactive material exposure by weighing the risks of exposure, actual or potential, against its benefits. Exposure probability, the biological consequences related to dose, and the number of people exposed are the essential elements to be evaluated in making a risk determination.

Emergency situations involving the saving of lives require separate criteria than those actions required to retrieve deceased victims or to save property. The limits for radiation exposure for reentry activities shall be in accordance with DOE/RL-96-109, *Hanford Site Radiological Control Manual* (DOE 1994). Limits for nonradiological hazardous materials will be established using the lowest limits of:

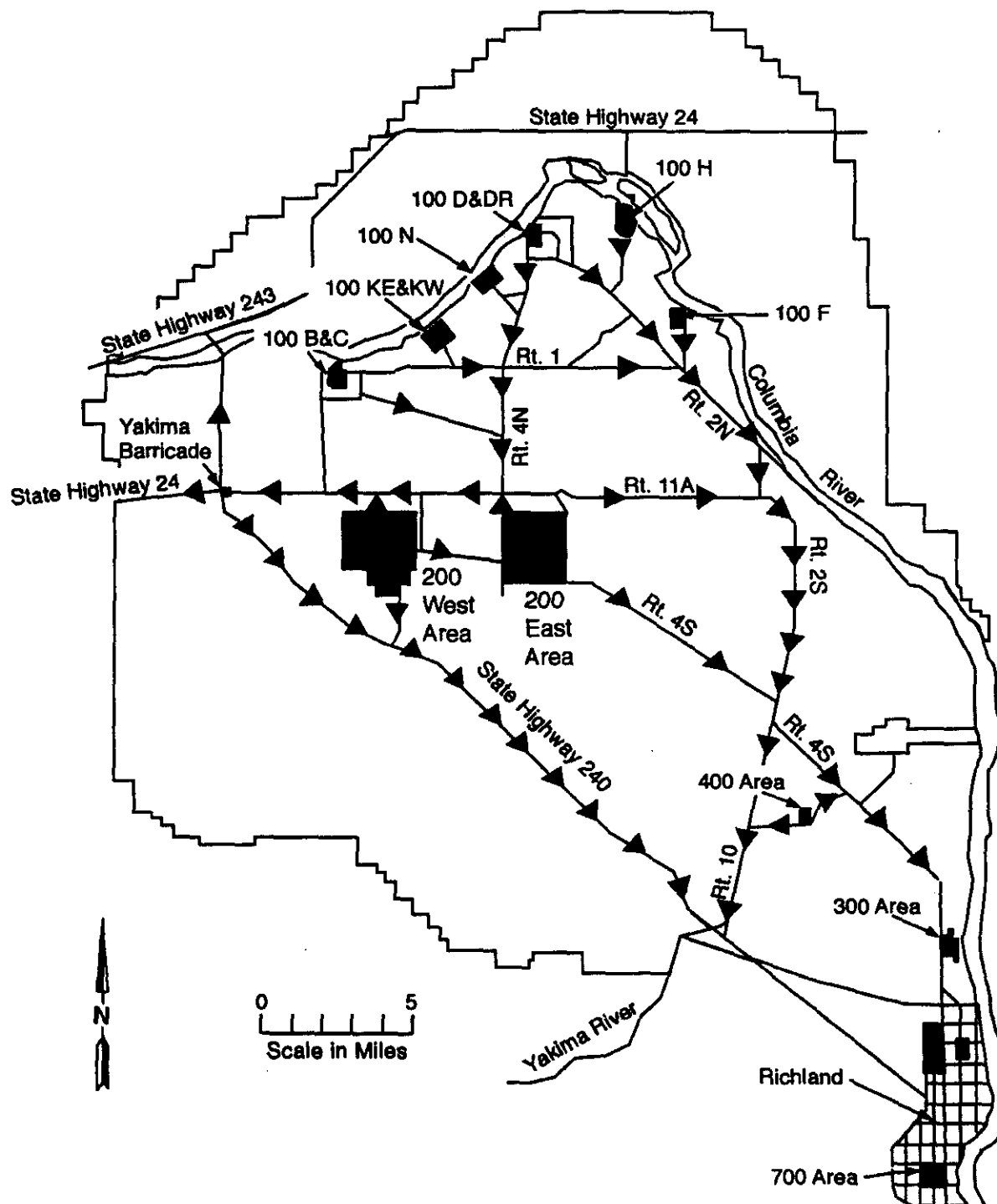
- OSHA permissible exposure limits;

Protective Actions and Reentry

- American Conference of Governmental Industrial Hygienists Threshold Limit Values; and
- specific Washington State Department of Labor and Industries permissible exposure limits mandated by RL/ORP (e.g., asbestos).

7.3.2 Termination of Protective Actions

The relaxation or lifting of protective actions generally shall be based on facility conditions and consequence assessments. The Policy Team will decide when onsite protective actions can be modified, after consultation with the SMT. The Policy Team will provide recommendations to affected counties and states for the relaxation of offsite emergency protective actions (i.e., evacuation or sheltering within the plume EPZ). The states shall be responsible for decisions on relaxation of ingestion protective actions, based on data provided by the UDAC.

Figure 7-3. Hanford Site Evacuation Routes.

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11.0 EMERGENCY FACILITIES AND EQUIPMENT

This section identifies and describes the emergency facilities and equipment used or maintained by RL/ORP and the Hanford Site contractors. The provision of facilities and equipment adequate to support emergency response, including the capability to notify employees of an emergency to facilitate the safe evacuation of employees from the work place, immediate work area, or both shall be addressed. Facility-specific equipment may be listed in respective building emergency plans and/or procedures.

11.1 EMERGENCY FACILITIES

This section contains a description of the RL/ORP and site contractor facilities that have been equipped for emergency control, operations, and coordination. Figure 11-1 depicts the geographical location of the primary and alternate DOE Hanford EOC, the POC, and the Hanford fire stations. The functions, staffing, and activation criteria of the DOE Hanford EOC are described in the various subsections of section 2.0.

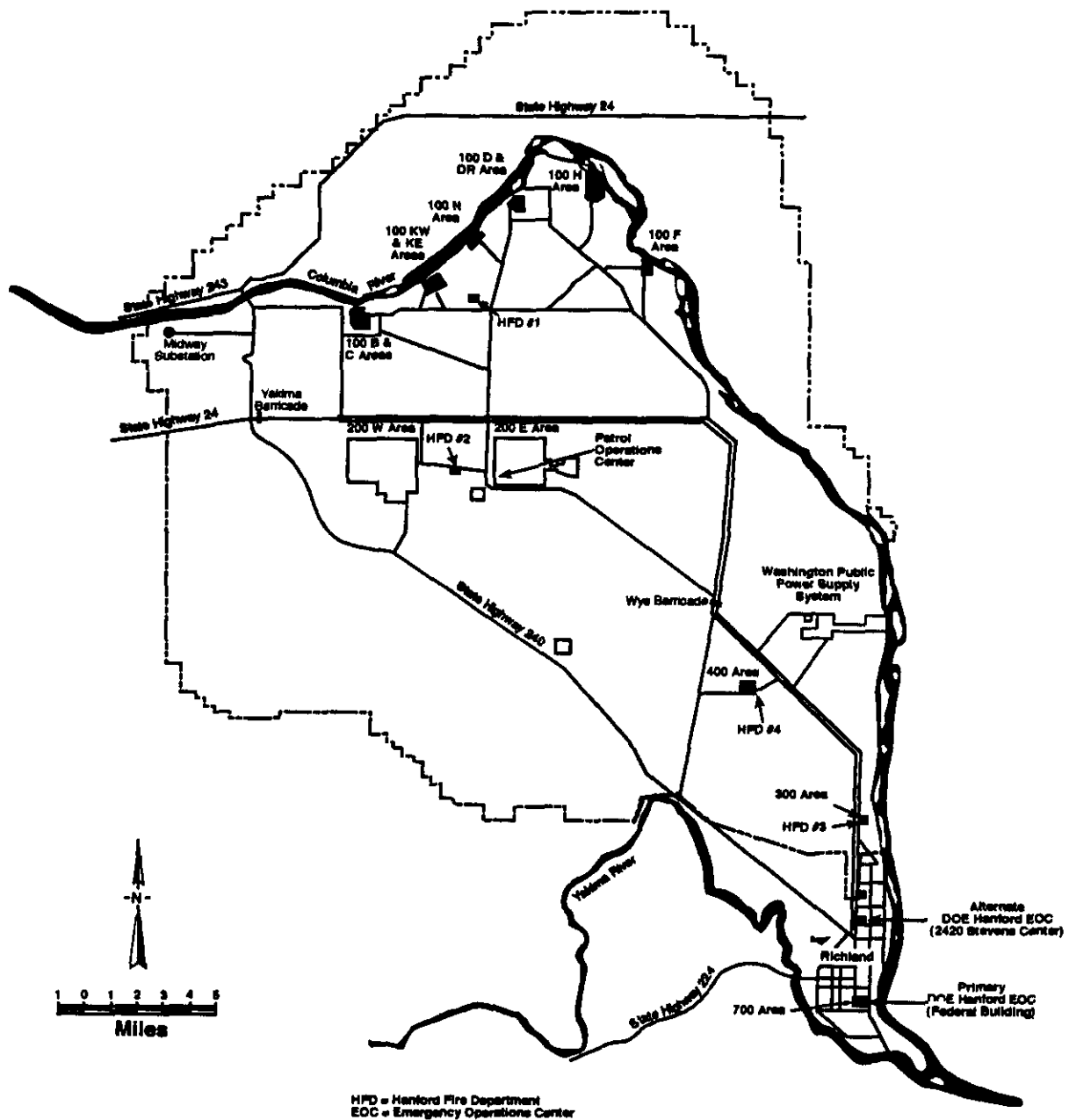
11.1.1 U.S. Department of Energy Hanford Emergency Operations Center

The DOE Hanford EOC, which consists of the Policy Team, SMT, and the JIC, is located in the Federal Building, 825 Jadwin Avenue, Richland, Washington. The Policy Team and SMT workrooms are dedicated facilities located in the basement of the Federal Building. The JIC is a dedicated facility located on the main floor in Rooms 157 and 158. Telecommunication, word processing, and duplication equipment is provided to support JIC-participating agencies and the media. The JIC may also dedicate the use of the auditorium, portions of the lobby, and other areas in the Federal Building for JIC purposes as needed. The DOE Hanford EOC location provides favorable proximity to the emergency management and response staff, the RL Communications Center, and to additional office space.

Additionally, the DOE Hanford EOC is outside of Hanford Site facility plume EPZs thus ensuring a high probability of the DOE Hanford EOC being habitable following an emergency on the Hanford Site. An emergency power generator, routinely serviced and maintained by the General Services Administration, is available to supply power to essential emergency equipment in the Federal Building in the event of loss of normal power.

The DOE Hanford EOC shall be equipped with compatible communication, photo/video, and automatic data processing support specified by the DOE-HQ Director of Emergency Management. Additionally, primary and backup means of communication shall be available and capable of operating with other DOE elements and with other Federal, tribal, state, and local response organizations as applicable.

Figure 11-1. Hanford Site Emergency Centers and Fire Stations.



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Emergency Facilities and Equipment

An alternate DOE Hanford EOC has been established at 2420 Stevens Center Boulevard, Richland, Washington. The criteria for abandonment of the primary DOE Hanford EOC will be when radiation monitoring at the DOE Hanford EOC shows whole body dose rates (beta plus gamma) exceeding 0.1 rem/hr for greater than 1 hour or the DOE Hanford EOC becomes uninhabitable for any other reason (e.g., earthquake or a security breach).

The primary DOE Hanford EOC may be reactivated following abandonment if the radiation dose rates decrease or other conditions change to the point where, in the opinion of the RL/ORP Emergency Manager, it is safe to reoccupy the primary DOE Hanford EOC.

Procedures for the operation of the alternate DOE Hanford EOC are found in the *Emergency Plan Implementing Procedures* (DOE-0223).

11.1.2 Hanford Patrol Operations Center

The POC is located in the 2721-E Building in the 200 East Area. The POC monitors the emergency response number (911), business number (373-3800), and acts as the single point-of-contact for RL/ORP.

The POC notifies and/or dispatches the:

- Hanford Fire Department, including ambulance and the Hazardous Material Response Team;
- Hanford Patrol;
- HEHF on-call provider;
- Transportation on-call representative;
- EDO; and
- Benton County Sheriff personnel assigned to Hanford Site.

The POC also is responsible for alarm monitoring; activation of crash alarm telephone systems and sirens; and assisting in dispatch and radio communications for emergency responders.

11.1.3 Occurrence Notification Center

The ONC, located in the basement of the Federal Building, is a 24-hour operational facility equipped to communicate information regarding occurrences at or affecting the Hanford Site to RL/ORP and site contractor personnel and to state and local emergency management organizations.

Specific responsibilities of the ONC includes:

- activating the Hanford Site ERO via the automated ENS;

Emergency Facilities and Equipment

- providing initial notifications via the automated ENS to Grant County residents within the Hanford EPZs; and
- providing notifications to the DOE-HQ EOC and state and local emergency management agencies.

ONC notification responsibilities are covered further in applicable subsections of section 5.0. Specific operational desk instructions shall be maintained by the ONC.

11.1.4 Medical Emergency Facilities

Capabilities for medical aid, triage, and personnel decontamination shall be available onsite. Emergency Medical Support is described further in section 8.0.

Medical emergency facilities include the following.

- **Health Care Centers:** HCCs are located at 3080 George Washington Way in Richland and in the 200 West Area. HCCs are occupied on day shift Monday through Friday, excluding holidays, and contain sufficient medical supplies to treat patients with occupational illnesses or injuries who do not require hospitalization. Ambulance service is provided by the Hanford Fire Department.
- **Site Decontamination Facilities:** Personnel decontamination sites are located in several locations in the 100, 200, 300, and 400 Areas.
- **Emergency Decontamination Facility:** The EDF is located north of Kadlec Medical Center (Richland, Washington). The EDF is a dedicated, hardened facility designed to accommodate nonserious or nonlife-threatening radiologically contaminated injuries.

Agreements shall be in place between RL and local hospitals for backup medical treatment. A copy of each MOU is contained in Appendix B.

11.1.5 Protective Clothing Cleaning

Interstate Nuclear Services provides laundry services for the Hanford Site. The laundry facility is located in the Science and Technology Park just south of the site. The laundry manages protective clothing, including cleaning both radioactively contaminated laundry and noncontaminated laundry.

11.1.6 State and County Emergency Operations Centers

The Benton County EOC is located at 651 Truman Avenue, Richland, Washington.

The Franklin County EOC is located at 502 Boeing Street, Pasco, Washington.

The Grant County EOC is located at 6500 32nd Avenue NE, Moses Lake, Washington.

The Washington State EOC is located in the office of the Washington State Emergency Management Division (Building 20) at Camp Murray in Tacoma, Washington.

The Oregon State EOC is in the office of the Oregon Emergency Management Division, located at 595 Cottage Street NE, Salem, Oregon.

11.2 EMERGENCY EQUIPMENT

Adequate personal protective equipment and other equipment and supplies shall be available and operable to meet emergency preparedness requirements and the needs determined by the results of the hazards assessment, if required, and for emergency response personnel to carry out their respective duties and responsibilities.

Emergency and backup equipment (including monitoring devices) shall be located in readily accessible areas away from the scene of the potential accident. Equipment shall be available, as appropriate, to provide functions for the potential, credible emergencies such as:

- emergency dosimetry;
- personnel protection;
- radiation control monitoring instrumentation;
- monitoring of personnel, facilities, and the environment onsite and offsite;
- emergency medical treatment onsite;
- meteorological evaluation;
- handling of personnel contaminated with radioactive or toxic materials, and fatalities;
- supplying emergency power, water, and sanitation;
- emergency transportation for personnel evacuation;

Emergency Facilities and Equipment

- movement of earth or heavy loads; and
- emergency communications, including portable and secure communications equipment, as required.

To ensure equipment reliability, emergency equipment should, to the extent practical, be the same equipment used for routine operations. RL/ORP and the site contractors maintain a variety of light and heavy equipment and supplies that could be diverted from routine use to emergency use, if needed.

All equipment that could be used in an emergency response is listed in the RL Property System database, which can be quickly accessed to determine the current status of each piece of equipment. This system is maintained and operated by the Resource Allocation and Management group of the operating contractor.

As applicable, the BED/BW/IC and/or the Onsite Recovery Manager and staff shall ensure that all equipment is cleaned and fit for its intended use before operations are resumed. This may include actions to ensure that depleted stocks of neutralizing and absorbing materials are replenished, self-contained breathing apparatus are cleaned and refilled, fire extinguishers are recharged or replaced, and protective clothing is cleaned (or disposed of) and restocked.

11.2.1 Assessment Equipment

Emergency equipment shall be available, as appropriate, to allow an early and reliable determination of the seriousness of an accident. The equipment for both emergency and continuing assessment of the facilities and environment at the Hanford Site consists of dosimeters, criticality detectors and alarms, and effluent and environmental monitoring equipment. Each building having a potential for a nuclear accident has a list of dosimeters, criticality detectors, and alarms, as well as a drawing showing their location in relation to prominent facility features.

Arrangements are in place with the Aerial Measuring System (DOE Nevada Operations Office) for aerial surveillance and monitoring through UDAC.

11.2.1.1 Nuclear Accident Dosimeter. The Hanford Site nuclear accident dosimeter is a stationary device that provides neutron and gamma dose information following a criticality or high-level radiation event. The dosimeter satisfies the requirements for an emergency dosimetry system by providing a system capable of determining the:

- neutron dose (in rads);
- photon dose in the presence of neutrons (from 10 to 10,000 rads); and
- neutron flux in each of five energy intervals, which permits calculation of the neutron dose equivalent in rem.

Emergency Facilities and Equipment

These dosimeters are recovered only when directed by RL. PNNL maintains a current list of nuclear accident dosimeter locations in PNL-MA-583 (PNL 1994). Instructions for recovery of these dosimeters are contained in site contractor emergency procedures.

11.2.1.2 Emergency Instrumentation. Under emergency conditions, many needed supplies and equipment would be drawn from the instrument and equipment pool used for normal operations at the Hanford Site. This ensures that multiple sources of supplies are available and that the equipment is calibrated, maintained, and ready for use by personnel involved in controlling the emergency.

11.2.2 Fire Control Equipment

Buildings shall be equipped with fire control equipment, such as automatic fire-suppression (sprinkler) systems and portable fire extinguishers, in accordance with National Fire Protection Association safety codes. Where equipped, portable fire extinguishers must comply with the National Fire Code standards and be inspected monthly with inspections recorded on tags attached to each extinguisher.

11.2.3 Personal Protective Equipment

Buildings shall have safety showers and eyewash stations, located as necessary, in accordance with applicable regulations. Drainage from these stations shall be contained. In addition to these stations, portable eyewash equipment shall be maintained at protective storage areas as necessary. The eyewash and shower stations shall be inspected regularly.

Protective clothing and respiratory protective equipment shall be maintained for use during both routine and emergency operations. Equipment not provided by the Hanford Fire Department shall be identified in nonhazardous and hazardous facility documentation.

11.2.4 Spill Control and Contamination Supplies

Spill control and contamination supplies shall be located in facilities as necessary. Supplies may include sorbent materials for organic or inorganic materials; diatomaceous earth for liquid waste spills; neutralizing sorbents for response to acid or caustic spills; containers and salvage containers (e.g., overpacks); and brooms, shovels, and miscellaneous spill response supplies.

11.2.5 Decontamination Operation Equipment

The T Plant Complex in the 200 West Area provides equipment decontamination services for the Hanford Site.

11.2.6 Evacuation Vehicles

The BEDs shall ensure that vehicles are available to move all personnel from their facility. This may be accomplished by a combination of government-owned and private vehicles. If insufficient vehicles are available, the BED can coordinate the response of additional transportation assets through the DOE Hanford EOC.

11.2.7 Hanford Patrol

Hanford Patrol maintains a large inventory of security response equipment, including transportation, weaponry, protective equipment, and communication.

11.2.8 Hanford Fire Department

The Hanford Fire Department maintains a large inventory of fire fighting, hazardous material response, and rescue equipment. The Hanford Fire Department also operates the site ambulance service from the various area fire stations. Mutual aid agreements with local fire departments provide additional backup capabilities.

A description of equipment for hazardous material responses available through the Hazardous Materials Response Team is delineated in Appendix C of this plan. Locations of the four fire stations on the Hanford Site are shown in Figure 11-1.

11.3 MAINTENANCE AND TESTING OF ALARM AND COMMUNICATION SYSTEMS

The facility manager or BED shall ensure that preventive maintenance is performed on facility emergency sirens and criticality alarm systems by the responsible maintenance organizations in accordance with the established preventative maintenance procedures.

The FHI Emergency Preparedness organization shall ensure that preventive maintenance is performed on area and river sirens.

Facility sirens, facility criticality alarm systems, and area sirens not heard in offsite, permanently populated areas shall be audibly tested at a predesignated time each month in accordance with contractor preventive maintenance procedures.

Where facility sirens, facility criticality alarm systems, and area sirens may be heard in offsite, permanently populated areas, audible testing shall be conducted on an annual basis and must be coordinated with offsite emergency authorities. Silent testing shall be used if more frequent tests are necessary to assure operability. Site contractors responsible for these sirens will coordinate audible tests and necessary offsite notifications with RL SES.

Emergency Facilities and Equipment

The site contractor responsible for the facility sirens, facility criticality alarm systems, and area sirens to be tested is responsible to ensure appropriate notification to workers through such means as announcements over the crash alarm telephone system, public address system, and/or e-mail. Sitewide information sources, such as the POC and Hanford telephone operator, should also be notified of any audible facility siren, facility criticality alarm system, or area siren testing.

Communication systems testing shall include:

- monthly testing of area crash alarm telephone systems (100K, 100N, 200 East, 200 West, 300, and 400 Areas) by the responsible site contractor;
- monthly testing of the DOE Hanford EOC radios by the FHI Emergency Preparedness organization; and
- quarterly testing of the ENS by the ONC.

As applicable, the organization(s) responsible for communications with DOE-HQ and offsite agencies shall test communications systems at least annually or as often as needed to ensure that communications systems are operational.

11.4 INVENTORY OF EMERGENCY EQUIPMENT

Contractor emergency equipment shall be inventoried periodically in accordance with site contractor inventory control procedures to ensure availability in the event of an emergency.

A quarterly inventory of emergency equipment in emergency centers shall be conducted and the records of these inventories maintained for one year by the site contractor responsible for emergency center maintenance. An implementing procedure for conducting emergency center inventories shall be maintained and corrected within 30 days of an inventory change.

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14.0 PROGRAM ADMINISTRATION

The basic purpose of program administration is to establish and maintain effective organizational management and control of the emergency management program. Even though the program is now available to ORP and its contractors, RL retains the primary responsibility to oversee, coordinate, and assess the emergency management programs of the Hanford Site contractors. RL will ensure the preparation and maintenance of plans and procedures necessary for RL/ORP to carry out its responsibilities during an emergency and will schedule through ORP any activities (i.e., drills, exercises, assessments) of ORP contractors.

14.1 EMERGENCY MANAGEMENT PROGRAM ADMINISTRATOR

The RL/ORP Managers have the responsibility for administering the overall emergency management program for the Hanford Site. The RL/ORP Managers have delegated the authority to develop, implement, and maintain the emergency management program to the RL SES director; however, key program decisions and/or policy changes will be coordinated with ORP prior to implementation. The RL Emergency Preparedness staff of RL SES carries out these responsibilities.

Each site contractor shall designate an individual to administer the site-level emergency management program and/or to administer/assess the facility-level emergency management program. This individual shall also assist, as necessary, in the development and maintenance of this plan and applicable implementing procedures; development of the Hanford Emergency Readiness Assurance Plan (ERAP) and annual updates; development and conduct of training and exercise programs; coordination of assessment activities; development of related documentation; and coordination of emergency resources.

Each building organization shall designate an individual (e.g., BED, BW, emergency preparedness coordinator) responsible to administer the emergency management program at the facility level.

14.1.1 Emergency Management Functions at the U.S. Department of Energy, Richland Operations Office

The RL/ORP Emergency Preparedness staff functions, as appropriate to the responsibilities described above, related to overseeing site contractor emergency preparedness programs include:

- ensuring that hazards assessments and hazards surveys for emergency planning are adequately performed and documented;

Program Administration

- reviewing and recommending approval of the annual Hanford ERAP developed by site contractors and RL/ORP, and submitting it to the CSO and the DOE-HQ Director of Emergency Management for inclusion in the annual report;
- assessing facility emergency preparedness programs to verify compliance with appropriate Federal and state directives and policy, and providing the results/conclusions to the CSO and the DOE-HQ Director of Emergency Management;
- submitting DOE Order requirement exemption requests, as necessary, for approval by the Under Secretary, which document the basis for each exemption, and establishes and justifies alternatives equivalent to or exceeding the Order;
- reviewing and approving the Hanford Site emergency exercise program, and reviewing exercise evaluation and quarterly corrective action status reports; and
- reviewing written reports of evaluations of declared events.

RL Emergency Preparedness staff functions to ensure that RL/ORP can carry out its responsibilities in an emergency include:

- ensuring that annual budgets and mission and function statements reflect implementation policies and decisions;
- assigning a senior emergency preparedness representative to the Emergency Management Advisory Committee;
- revising and updating this plan and the *Emergency Plan Implementing Procedures* (DOE-0223) in accordance with DOE O 151.1 and other appropriate Federal and state regulations, and ensuring integration within the overall emergency management program;
- interfacing with Federal, tribal, state, and local emergency management organizations;
- maintaining and negotiating agreements with state and county response agencies, Federal assistance agencies, and maintaining agreements with medical and fire support agencies;
- providing training to state and local emergency response personnel, as requested;
- recruiting and training staff for the DOE Hanford EOC;
- maintaining the DOE Hanford EOC facility and equipment; and
- maintaining the DOE Region 8 RAP.

Additional organizational responsibility, authority, and functions within RL for implementing requirements from DOE O 151.1 and other DOE Directives and Federal and state laws are delineated in the *Richland Operations Office Functions, Responsibilities and Authorities Manual*.

14.2 EMERGENCY READINESS ASSURANCE PROGRAM

14.2.1 Hanford Emergency Readiness Assurance Plan

Based upon the organization and management of the Hanford Site emergency management program, individual facility ERAPS are not provided. Rather, RL/ORP and site contractor Emergency Preparedness personnel participate in the preparation of a consolidated Hanford ERAP.

The Hanford ERAP shall be a planning tool to identify and develop needed resources and improvements. The Hanford ERAP shall highlight any significant changes in emergency management programs (i.e., planning bases, organizations, exemptions) from previous ERAPs, as well as comparing actual achievements to goals, milestones, and objectives. If applicable, the Hanford ERAP shall be reviewed for classified or controlled information prior to submittal.

Site contractor Emergency Preparedness personnel shall submit initial or updated emergency planning and preparedness activities information, as indicated above, to RL SES by September 30 each year for review and inclusion in the Hanford ERAP. The information shall cover a planning cycle of five years beginning the next October 1.

The RL Emergency Preparedness staff shall review and finalize the Hanford ERAP for approval by the RL SES director. The RL staff will obtain concurrence from ORP prior to ERAP approval by the RL SES director. The consolidated Hanford ERAP shall be submitted to the CSO and DOE-HQ Director of Emergency Management by November 30 each year.

14.2.2 Emergency Readiness Assurance Assessments/Appraisals

RL/ORP shall periodically review the ability of contractor-operated facilities to meet requirements of the DOE Emergency Management System. Appraisals and assessments shall be based on specific standards and criteria published by the DOE-HQ Director of Emergency Management. Appraisal findings shall be acknowledged by the appraised activity within 90 days of receipt of findings with a corresponding plan for correction. The RL/ORP appraising organization shall determine closure of open or unresolved appraisal findings.

Additionally, RL/ORP shall assess the emergency management program of each site contractor under its supervision. Each site contractor shall be assessed at least once every 3 years. RL/ORP shall notify the CSO of its assessment schedule.

Contractor-operated facilities shall conduct an annual internal readiness assurance assessment of their emergency management programs with the documented results provided to RL/ORP. Corrective actions shall be tracked and status reports provided to RL/ORP. In addition, site contractors shall assist external organizations (i.e., RL/ORP, DOE-HQ) in scheduling and conducting evaluations, appraisals, and assessments of their respective facilities; respond to external evaluation, appraisal, and assessment findings within 90 days of receipt of findings; and resolve all evaluation, appraisal, and assessment findings with the responsible organization or request approval for an exemption to the requirements.

RL/ORP and contractor assessment results shall be provided to the CSO and DOE-HQ Director of Emergency Management through documentation in the Hanford ERAP.

14.2.3 Lessons Learned

RL/ORP and each site contractor emergency management program shall include a system to track and identify correction of findings or lessons learned from training, drills, exercises, and actual responses.

14.3 DOCUMENT CONTROL

This plan and RL/ORP and site contractor implementing procedures shall be controlled distribution documents. RL/ORP and site contractors shall use a document control system to ensure that controlled copies are up to date and available at locations where they may be needed in an emergency. RL/ORP and site contractors shall determine the internal and external controlled copy distribution of the emergency plan and respective implementing procedures.

14.3.1 Review and Update of the Hanford Emergency Management Plan and U.S. Department of Energy Richland Operations Office/Office of River Protection and Site Contractor Implementing Procedures

This plan and the *Emergency Plan Implementing Procedures* (DOE-0223) will be reviewed annually by the RL/ORP and the appropriate response organizations and agencies. RL SES is responsible for the coordination of this review and any resulting actions. RL SES will identify specific changes deemed necessary and will ensure implementation of the revisions.

Revising and updating of this plan and/or the *Emergency Plan Implementing Procedures* (DOE-0223) may be initiated at any time deemed necessary by RL SES. Changes and/or amendments shall be incorporated by RL SES, concurred upon by ORP and site contractors, and approved by the RL/ORP Manager or his designee.

A controlled copy of the approved plan and the *Emergency Plan Implementing Procedures* (DOE-0223) shall be submitted to the DOE-HQ Director of Emergency Management, the CSO, and to the DOE-HQ EOC.

Site contractor emergency plans (e.g., building emergency plans) and implementing procedures shall be reviewed at least annually.

14.3.1.1 Review and Update Based on WAC 173-303

Portions of this plan, together with Hanford Site location/activity-specific documentation established to meet contingency plan requirements, must be reviewed and immediately amended, if necessary, whenever:

- applicable regulations or the Hanford Facility RCRA Permit are revised;
- this plan or the location/activity-specific building emergency plan/procedure fails in an emergency;
- the Hanford Site facilities/activities change (e.g., design, operation, maintenance, etc.) in a way that materially increases the potential for fires, explosions, or releases of dangerous waste or dangerous waste constituents, or in a way that changes the response necessary in an emergency; or
- the list of emergency equipment changes.

14.3.2 Review of Agreements

Agreements with local, state, and Federal officials and agencies (as contained in Appendix B) are maintained by RL SES and are reviewed and/or updated at least annually. Updates may be initiated either by RL or by the agreement official or agency. Updates are documented by amendment marks on individual pages of the agreement unless comprehensive amendments are required. Agreements shall be reviewed annually and revised as necessary. RL SES shall maintain documentation of the annual review.

14.3.3 Classified Information

RL/ORP and site contractors shall ensure that emergency preparedness documents, such as plans, procedures, scenarios, and assessments, are reviewed, as necessary, for classified and Unclassified Controlled Nuclear Information (UCNI) by an authorized derivative classifier or UCNI reviewing official.

14.3.4 Supporting Documents

RL SES shall maintain copies of documents and records that support the emergency management program (i.e., technical data, hazards assessments, ERAPs, and plans and procedures). Records of training, drills, and exercises shall be maintained to document status of the program and provide direction for improvements.

Hanford Site contractors shall maintain records that will provide documentation of the facility emergency preparedness program and to support the preparation of the ERAP, work plans, etc.

14.3.5 Vital Records

A program shall be established to ensure that vital records, regardless of media, essential to continued functioning or reconstruction of an organization during and after an emergency, are maintained and available, per 36 CFR 1236.

The vital records program ensures the protection and availability of information critical to effective emergency response management, and the protection of the legal rights and interests of citizens, the Federal government and its employees, and DOE contractors and site personnel. The RL Office of Site Services is responsible to ensure that a vital records program for the Hanford Site is in place.

RL/ORP and site contractors shall annually review their respective records indicated on the vital records submittal listing and determine necessary additions to or deletions from the list. RL SES shall ensure that the retrieval process for vital records is evaluated annually as part of a Hanford sitewide emergency exercise.

Each site contractor and RL/ORP shall provide designated storage locations for vital records, as appropriate. RL/ORP and site contractor documents identified as vital records, such as this plan, emergency procedures, and building emergency plans, shall be stored at the DOE Hanford EOC in paper form so they can be used without reliance on mechanical equipment. Other emergency operating records and rights and interests records designated as vital need not be kept at the DOE Hanford EOC.

14.3.6 Emergency Records

RL/ORP and site contractor emergency procedures shall provide for documentation of emergency records that contain information for review and reconstruction of major communications and actions taken during a declared emergency. These records include logs and documentation produced by the respective emergency response organizations (i.e., Incident Command Organization and the DOE Hanford EOC). RL SES shall maintain emergency records generated during the operation of the DOE Hanford EOC and may also request copies of emergency records generated at other emergency response locations.

In addition, provisions shall be in place for the control, monitoring, and maintenance of permanent records of onsite personnel exposures to internal/external radiological and nonradiological hazardous materials in response to emergency conditions. Exposure records shall be stored in accordance with existing site records retention requirements.

14.3.7 Plan Locations

Copies of this plan are maintained at:

- RL and ORP Emergency Preparedness program offices;
- each contractor Emergency Preparedness office and other locations as specified by the respective contractor;
- Hanford Fire Department (area fire stations);
- Occurrence Notification Center;
- DOE Hanford Emergency Operations Center (primary and alternate); and
- the Patrol Operations Center.

Copies of the plan are also maintained at the following offsite agencies (per their request) to meet the WAC 173-303-350(4) requirement:

- Kennewick Police Department;
- West Richland Police Department;
- Washington State Patrol;
- Pasco Fire Department;
- Richland Fire Department;
- City of Kennewick;
- Kadlec Medical Center;
- Our Lady of Lourdes Health Center;
- Benton County Emergency Management Center;
- Franklin County Emergency Management Center; and
- Grant County Emergency Management Center.

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1

CONTENTS

2	1.0	PART A [A]	1-1
3			
4			

1

1.0 PART A [A]

2 The original Part A, Form 3, Revision 0, for the PUREX (plutonium-uranium extraction) Storage
3 Tunnels was submitted in November 1987. A revised Part A, Form 3, Revision 1, was submitted in
4 September 1990.

5 The Part A, Form 3, Revision 1, was submitted to redesignate the PUREX Storage Tunnels as a
6 miscellaneous unit. Additionally, dangerous waste code D001 [Washington Administrative Code
7 (WAC) 173-303-090(5)] was added to address the ignitable characteristic of the silver nitrate stored in
8 Tunnel Number 2. The estimated annual quantities of waste also were modified to represent the
9 maximum quantity of waste placed in the PUREX Storage Tunnels in any given year since initial
10 operation.

11 The Part A, Form 3, Revision 2, was submitted in December 1994. This revision was prepared to add
12 Dangerous Waste Numbers D006 (cadmium), D007 (chromium), WT01 (state-only, toxic, extremely
13 hazardous waste), and WC02 (state-only, carcinogenic, dangerous waste) to existing Process Code
14 S05 (storage-miscellaneous). Also, State-only Dangerous Waste Numbers WT02 (state-only, toxic,
15 dangerous waste) and WP01 (state-only, persistent, extremely hazardous waste) were added to Process
16 Code S05. State-only Dangerous Waste Number WT01 was removed from Dangerous Waste Number
17 D008 (lead) in accordance with WAC 173-303-100.

18 The Part A, Form 3, Revision 3, was submitted in August 1995. This revision was prepared to add
19 dangerous waste numbers D005 (barium), D010 (selenium), and WT02 (state-only, toxic, dangerous
20 waste for light mineral oil) to process code (S05). State-only designations for existing dangerous waste
21 numbers were revised as follows: D006 - WT01 replaced by WT02, D007 - WT01 and WT02 removed,
22 D009 - WT01 removed, D011 - WT01 removed, Fluorothene - WT02 replaced by WT01, and WP01
23 removed.

24 The Part A, Form 3, Revision 4, was submitted in May 1996. This revision was prepared to replace
25 reference to 40 CFR 264, Subpart X, with WAC 173-303-680. State-only dangerous waste number
26 WC02 (carcinogenic, dangerous waste) was removed. The number of railcars presently stored in Tunnel
27 Number 2 was updated.

28 The Part A, Form 3, Revision 5, was submitted in September 1996. This revision was prepared in
29 support of the transition of contract responsibilities from Westinghouse Hanford Company to the new
30 Project Hanford Management Contractor.

31 The Part A, Form 3, Revision 5A, included in this permit application documentation consists of 10 pages
32 that include three figures and one photograph, and was prepared to change the storage code from S05 to
33 X99 due to regulation updates for miscellaneous units.

34

FORM 3		DANGEROUS WASTE PERMIT APPLICATION				I. EPA/State I.D. No.											
						W	A	7	8	9	0	0	0	8	9	6	7

OR OFFICIAL USE ONLY

Application Approved	Date Received (month/ day / year)	Comments

II. FIRST OR REVISED APPLICATION

Place an "X" in the appropriate box in A or B below (mark one box only) to indicate whether this is the first application you are submitting for your facility or a revised application. If this is your first application and you already know your facility's EPA/STATE I.D. Number, or If this is a revised application, enter your facility's EPA/STATE I.D. Number in Section I above.

A. First Application (place an "X" below and provide the appropriate date)

☐ 1. Existing Facility (See instructions for definition of "existing" facility. Complete item below.)

MO	DAY	YEAR
03	22	1943

*For existing facilities, provide the date (mo/day/yr) operation began or the date construction commenced. (use the boxes to the left)

*The date construction of the Hanford Facility commenced

☐ 2. New Facility (Complete item below.)

MO	DAY	YEAR

For new facilities, provide the date (mo/day/yr) operation began or is expected to begin

B. Revised Application (Place an "X" below and complete Section I above)

☒ 1. Facility has an interim Status Permit

☒ 2. Facility has a Final Permit

III. PROCESSES - CODES AND CAPACITIES

A. Process Code - Enter the code from the list of process codes below that best describes each process to be used at the facility. Ten lines are provided for entering codes. If more lines are needed, enter the codes(s) in the space provided. If a process will be used that is not included in the list of codes below, then describe the process (including its design capacity) in the space provided on the (Section III-C).

B. Process Design Capacity - For each code entered in column A enter the capacity of the process.

- Amount - Enter the amount.
- Unit of Measure - For each amount entered in column B(1), enter the code from the list of unit measure codes below that describes the unit of measure used. Only the units of measure that are listed below should be used.

PROCESS	PROCESS CODE	APPROPRIATE UNITS OF MEASURE FOR PROCESS DESIGN CAPACITY
STORAGE:		
Container (barrel, drum, etc.)	S01	Gallons or liters
Tank	S02	Gallons or liters
Waste pile	S03	Cubic yards or cubic meters
Surface impoundment	S04	Gallons or liters
DISPOSAL:		
Injection well	D80	Gallons or liters
Landfill	D81	Acre-feet (the volume that would cover one acre to a Depth of one foot) or hectare-meter
Land application	D82	Acres or hectares
Ocean disposal	D83	Gallons per day or liters per day
Surface impoundment	D84	Gallons or liters
TREATMENT:		
Tank	T01	Gallons per day or liters per day
Surface impoundment	T02	Gallons per day or liters per day
Incinerator	T03	Tons per hour or metric tons per hour; gallons per hour or liters per hour
Other (use for physical, chemical, thermal or biological treatment processes not occurring in tanks, surface impoundments or incinerators. Describe the processes in the space provided; Section III-C.)	T04	Gallons per day or liters per day

Unit of Measure	Unit of Measure Code	Unit of Measure	Unit of Measure Code	Unit of Measure	Unit of Measure Code
Gallons.....	G	Liters Per Day.....	V	Acre-Feet.....	A
eters.....	L	Tons Per Hour.....	D	Hectare-Meter.....	F
Cubic Yards.....	Y	Metric Tons Per Hour.....	W	Acres.....	B
Cubic Meters.....	C	Gallons Per Hour.....	E	Hectares.....	Q
Gallons Per Day.....	U	Liters Per Hour.....	H		

III. PROCESS - CODES AND DESIGN CAPACITIES (continued)

Example for Completing Section III (shown in line numbers X-1 and X-2 below): A facility has two storage tanks; one tank can hold 200 gallons and the other can hold 400 gallons. The facility also has an incinerator that can burn up to 20 gallons per hour.

Line No.	A. Process Code (from list above)			B. Process Design Capacity			For Official Use Only			
				1. Amount (Specify)	2. Unit of Measure (enter code)					
X-1	S	0	2	600	G					
X-2	T	0	3	20	E					
1	X	9	9	24,007	C					
2	* Process Code X99 is being used to designate the PUREX Storage Tunnels as a "Miscellaneous Unit" per WAC 173-303-680.									
3										
4										
5										
6										
7										
8										
9										
10										

C. Space for additional process codes or for describing other process (code "T04"). For each process entered here include design capacity.

X99

The PUREX Storage Tunnels, a miscellaneous unit (X99), are used for storage of mixed waste subject to the requirements of WAC 173-303-680. The two tunnels store waste from the PUREX Plant and other onsite sources. Since being placed into service, mixed waste has been stored in the tunnels on railcars. Not all material stored in the tunnels contains mixed waste.

The construction of Tunnel Number 1 was completed in 1956. The tunnel is approximately 5.8 meters (19 feet) wide by 6.7 meters (22 feet) high by 109 meters (358 feet) long and provides storage space for eight railcars. Between June 1960 and January 1965, all eight railcar positions were filled and the tunnel subsequently was sealed. The combined volume of the equipment stored on the eight railcars presently in Tunnel Number 1 is approximately 596 cubic meters (780 cubic yards). The maximum process design capacity for storage in Tunnel Number 1 is approximately 4,129 cubic meters (5,400 cubic yards).

The construction of Tunnel Number 2 was completed in 1964. Tunnel Number 2 is approximately 5.8 meters (19 feet) wide by 6.7 meters (22 feet) high by 514 meters (1,686 feet) long and provides storage space for 40 railcars. The first railcar was placed in Tunnel Number 2 in December 1967 and as of August 2000, 28 railcars have been placed in the tunnel. The combined volume of equipment stored on the 28 railcars presently in Tunnel Number 2 is approximately 2,204 cubic meters (2,883 cubic yards). The maximum process design capacity for storage in Tunnel Number 2 is approximately 19,878 cubic meters (26,000 cubic yards).

IV. DESCRIPTION OF DANGEROUS WASTES

A. Dangerous Waste Number - Enter the digit number from Chapter 173-303 WAC for each listed dangerous waste you will handle. If you handle dangerous wastes which are not listed in Chapter 173-303 WAC, enter the four-digit number(s) that describes the characteristics and/or the toxic contaminants of those dangerous wastes.

B. Estimated Annual Quantity - For each listed waste entered in column A, estimate the quantity of that waste that will be handled on an annual basis. For each characteristic or toxic contaminant entered in column A, estimate the total annual quantity of all the non-listed waste(s) that will be handled which possess that characteristic or contaminant.

C. Unit of Measure - For each quantity entered in column B enter the unit of measure code. Units of measure which must be used and the appropriate codes are:

ENGLISH UNIT OF MEASURE	CODE	METRIC UNIT OF MEASURE	CODE
Pounds	P	Kilograms	K
Tons	T	Metric Tons	M

If facility records use any other unit of measure for quantity, the units of measure must be converted into one of the required units of measure taking into account the appropriate density or specific gravity of the waste.

D. Processes

1. Process Codes:

For listed dangerous waste: For each listed dangerous waste entered in column A select the code(s) from the list of process codes contained in Section III to indicate how the waste will be stored, treated, and/or disposed of at the facility.

For non-listed dangerous wastes: For each characteristic or toxic contaminant entered in Column A, select the code(s) from the list of process codes contained in Section III to indicate all the processes that will be used to store, treat, and/or dispose of all the non-listed dangerous wastes that possess that characteristic or toxic contaminant.

Note: Four spaces are provided for entering process codes. If more are needed: (1) Enter the first three as described above; (2) Enter "000" in the extreme right box of item IV-D(1); and (3) Enter in the space provided on page 4, the line number and the additional code(s).

2. Process Description: If a code is not listed for a process that will be used, describe the process in the space provided on the form.

NOTE: DANGEROUS WASTES DESCRIBED BY MORE THAN ONE DANGEROUS WASTE NUMBER - Dangerous wastes that can be described by more than one Waste Number shall be described on the form as follows:

1. Select one of the Dangerous Waste Numbers and enter it in column A. On the same line complete columns B, C, and D by estimating the total annual quantity of the waste and describing all the processes to be used to treat, store, and/or dispose of the waste.
2. In column A of the next line enter the other Dangerous Waste Number that can be used to describe the waste. In column D(2) on that line enter "Included with above" and make no other entries on that line.
3. Repeat step 2 for each other Dangerous Waste Number that can be used to describe the dangerous waste.

Example for completing Section IV (shown in line numbers X-1, X-2, X-3, and X-4 below) - A facility will treat and dispose of an estimated 900 pounds per year of chrome shavings from leather tanning and finishing operation. In addition, the facility will treat and dispose of three non-listed wastes. Two wastes are corrosive only and there will be an estimated 200 pounds per year of each waste.

Line No.	A. Dangerous Waste No. (enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)			D. Processes			
									1. Process Codes (enter)		2. Process Description (if a code is not entered in D(1))	
X-1	K	0	5	4	900		P		T03	D80		
X-2	D	0	0	2	400		P		T03	D80		
X-3	D	0	0	1	100		P		T03	D80		
X-4	D	0	0	2					T03	D80		Included with above

Class 1 Modification:
Quarter Ending 09/30/2000

PUREX Storage Tunnels
Rev. 5A, 09/30/2000, 4 of 10

Photocopy this page before completing if you have more than 26 wastes to list.

I.D. Number (enter from page 1)

W A 7 8 9 0 0 0 8 9 6 7

IV. DESCRIPTION OF DANGEROUS WASTES (continued)

Line No.	A. Dangerous Waste No. (enter code)				B. Estimated Annual Quantity of Waste	C. Unit of Measure (enter code)			D. Processes			
									1. Process Codes (enter)		2. Process Description (if a code is not entered in D(1))	
1	D	0	0	5	454*		K		X99			Storage - Miscellaneous
2	D	0	0	6	454*		↓		↓			↓
3	W	T	0	2			↓		↓			↓
4	D	0	0	7	454*		↓		↓			↓
5	D	0	0	8	8,000*		↓		↓			↓
6	D	0	0	9	45*		↓		↓			↓
7	D	0	1	0	454*		↓		↓			↓
8	D	0	1	1	680*		↓		↓			↓
9	D	0	0	1			↓		↓			↓
10	W	T	0	2	454		↓		↓			Included with above
11	* The estimated annual quantity of waste listed above represents the maximum quantity of waste placed in either tunnel in a given year.											
12												
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44												
45												

IV. DESCRIPTION OF DANGEROUS WASTE (continued)

E. Use this space to list additional process codes from Section D(1) on page 3.

The waste stored in the tunnels could include barium(D005), cadmium (D006), chromium (D007), lead (D008), mercury (D009), selenium (D010), silver (D011), and light mineral oil (WT02, state-only, toxic, dangerous waste) contained in oil absorption material. The silver is predominately in the form of salts and is considered ignitable (D001) because of the presence of silver nitrate (AgNO_3). Cadmium also could be considered state-only, toxic, dangerous waste (WT02).

V. FACILITY DRAWING Refer to attached drawing(s).

All existing facilities must include in the space provided on page 5 a scale drawing of the facility (see instructions for more detail).

VI. PHOTOGRAPHS Refer to attached photograph(s).

All existing facilities must include photographs (aerial or ground-level) that clearly delineate all existing structures; existing storage, treatment and disposal areas; and sites of future storage, treatment or disposal areas (see instructions for more detail).

VII. FACILITY GEOGRAPHIC LOCATION

This information is provided on the attached drawings and photos.

LATITUDE (degrees, minutes, & seconds)

LONGITUDE (degrees, minutes, & seconds)

VIII. FACILITY OWNER

☒ A. If the facility owner is also the facility operator as listed in Section VII on Form 1, "General Information," place an "X" in the box to the left and skip to Section XI below.

B. If the facility owner is not the facility operator as listed in Section VII on Form 1, complete the following items:

1. Name of Facility's Legal Owner

2. Phone Number (area code & no.)

3. Street or P.O. Box

4. City or Town

5. St.

6. Zip Code

IX. OWNER CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Name (print or type)

Signature

Date Signed

John D. Wagoner, Manager
U.S. Department of Energy
Richland Operations Office

John D. Wagoner

Revision 5 signed
09/26/96

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

Name (Print Or Type)

Signature

Date Signed

See attachment

X. OPERATOR CERTIFICATION

I certify under penalty of law that I have personally examined and am familiar with the information submitted in this and all attached documents, and that based on my inquiry of those individuals immediately responsible for obtaining the information, I believe that the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.

John D. Wagoner

Owner/Operator

John D. Wagoner, Manager
U.S. Department of Energy
Richland Operations Office

09/26/96

Date Revision 5 Signed

H. J. Hatch

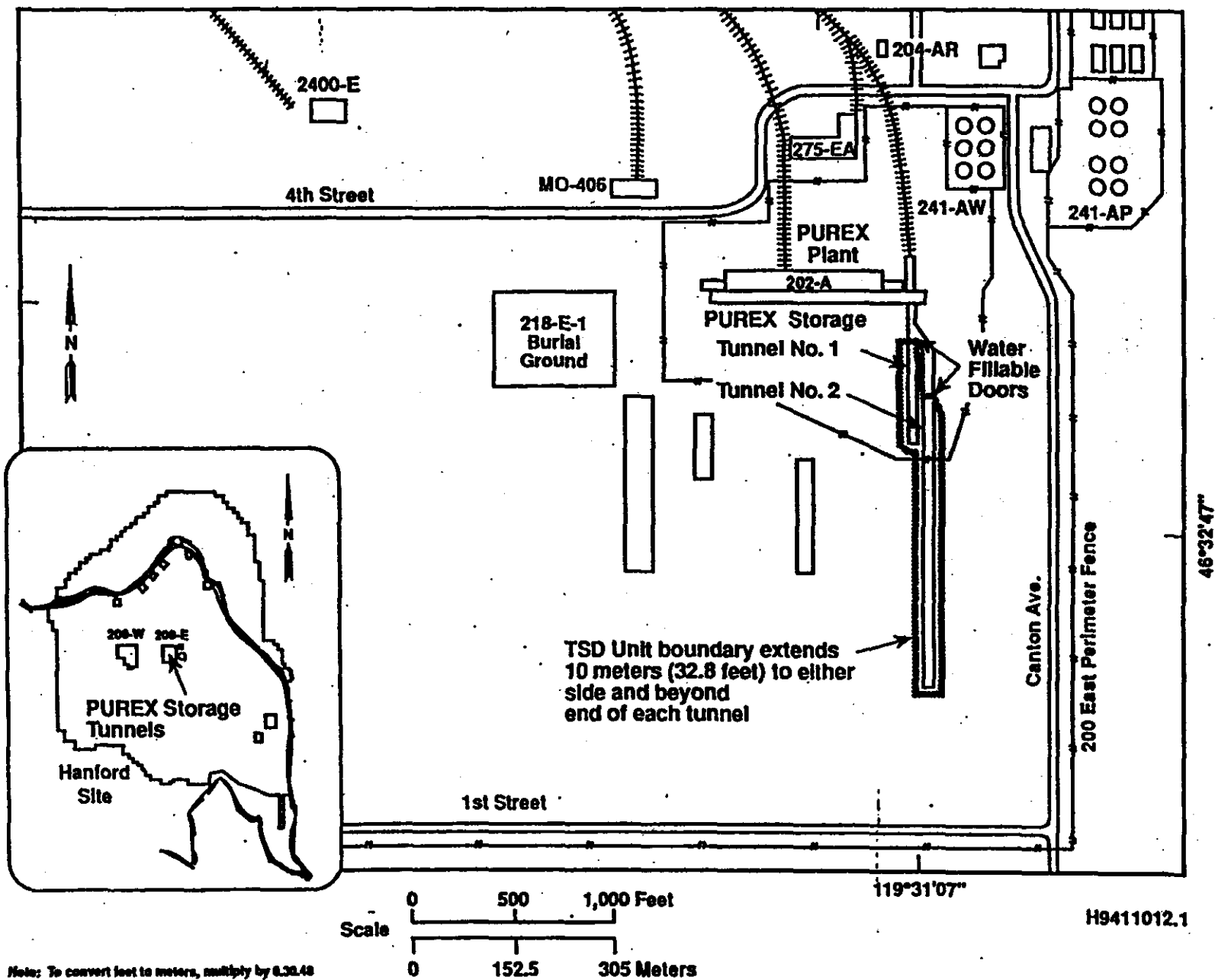
Co-Operator

H. J. Hatch,
President and Chief Executive Officer
Fluor Daniel Hanford, Inc.

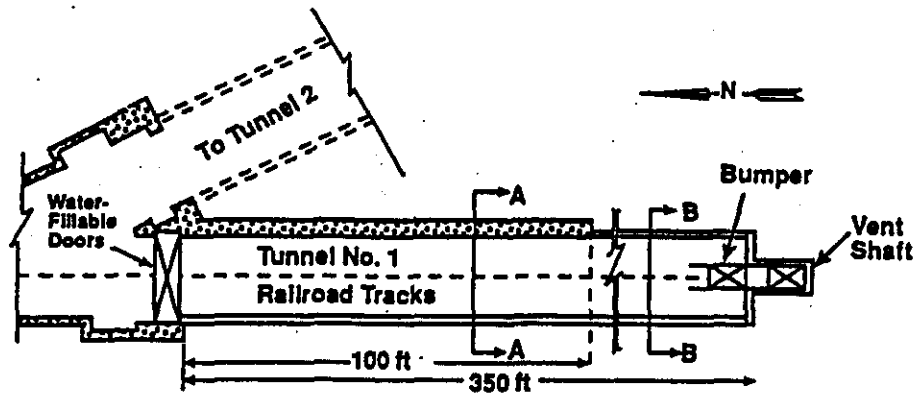
09/13/96

Date Revision 5 Signed

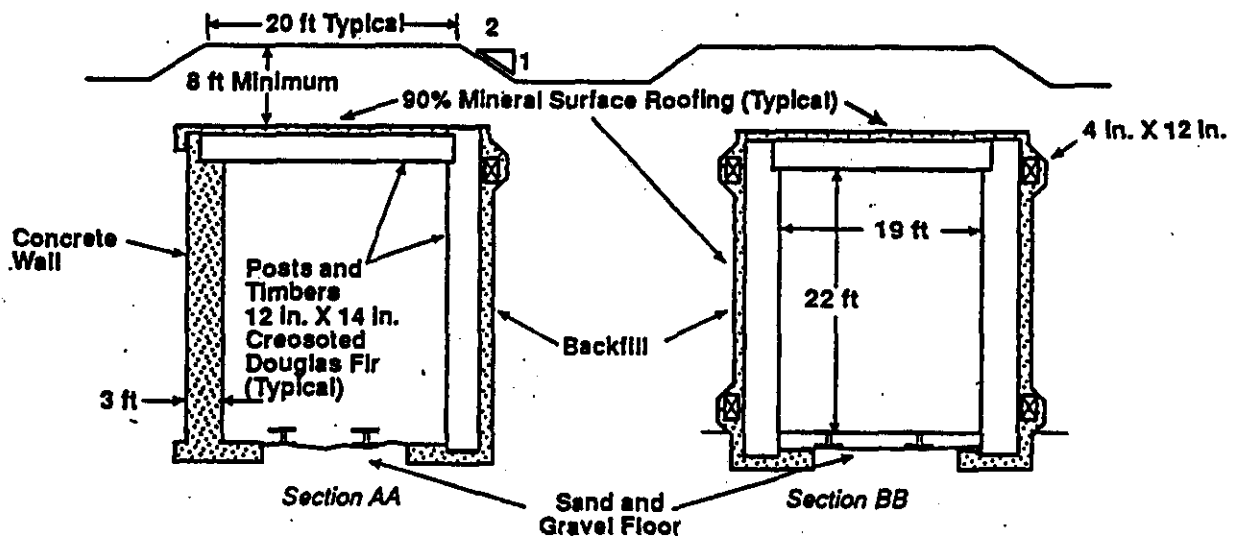
PUREX Storage Tunnels Site Plan



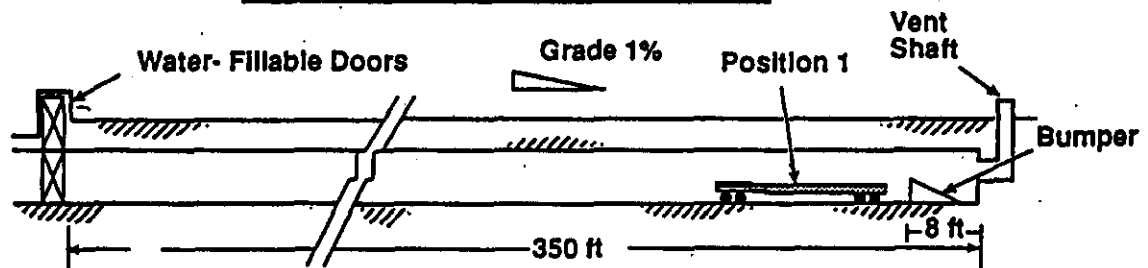
PUREX Tunnel No. 1 - Details



PUREX Tunnel No.1 - Plan View



PUREX Tunnel No.1 - Section View

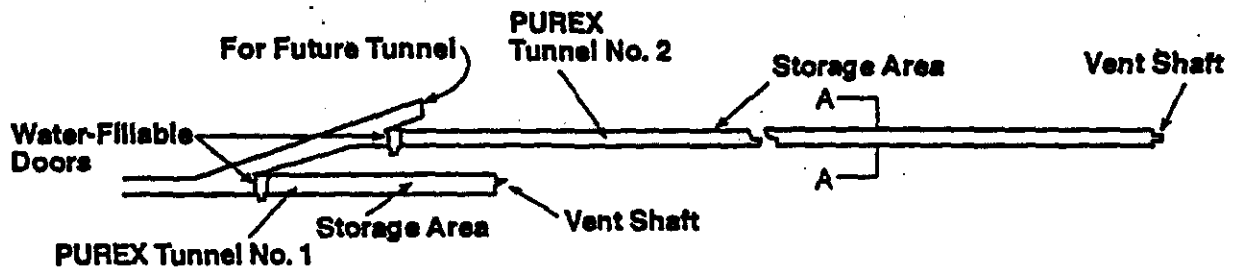


PUREX Tunnel No.1 - Elevation View

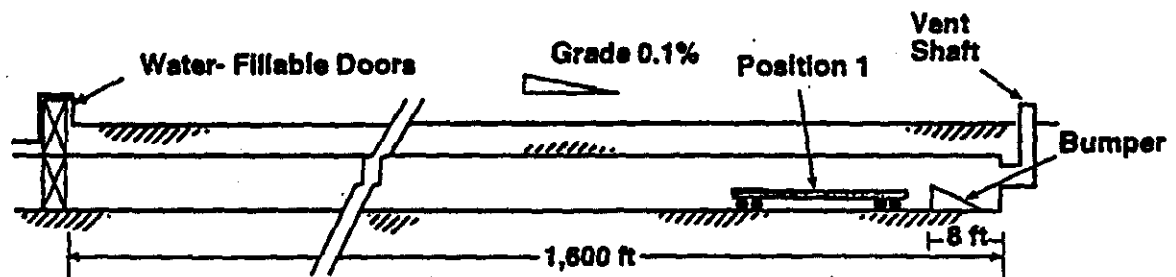
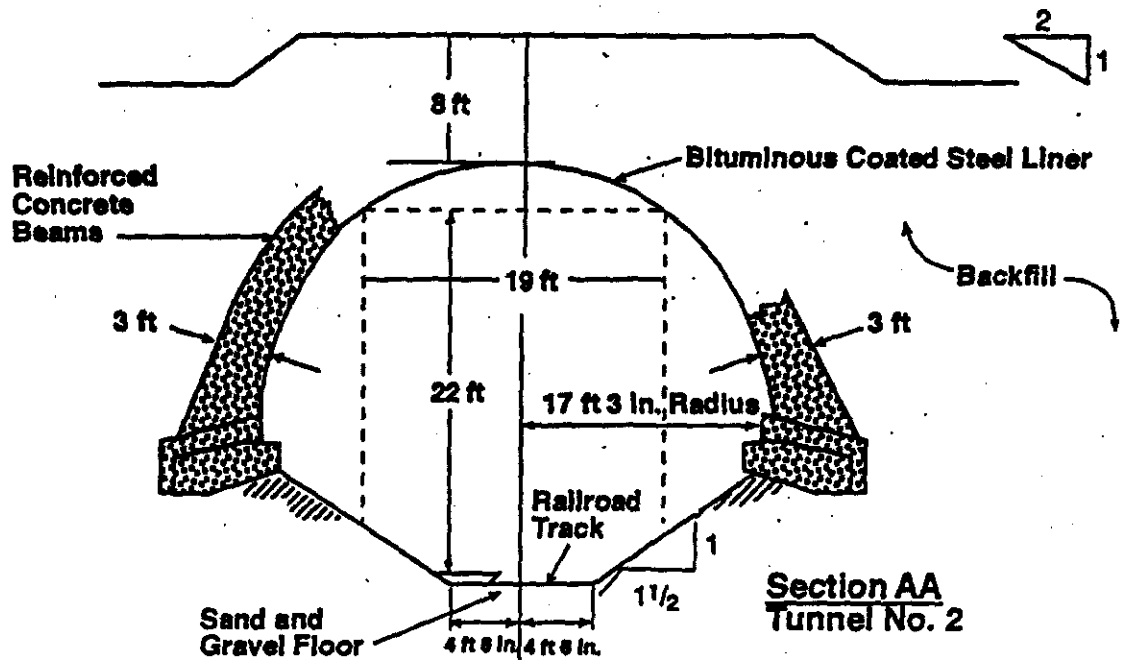
For conversion to meters, multiply feet by 0.3048.
For conversion to centimeters, multiply inches by 2.54.

H96030106.2

PUREX Tunnel No. 2 - Details



PUREX Tunnels - Plan View

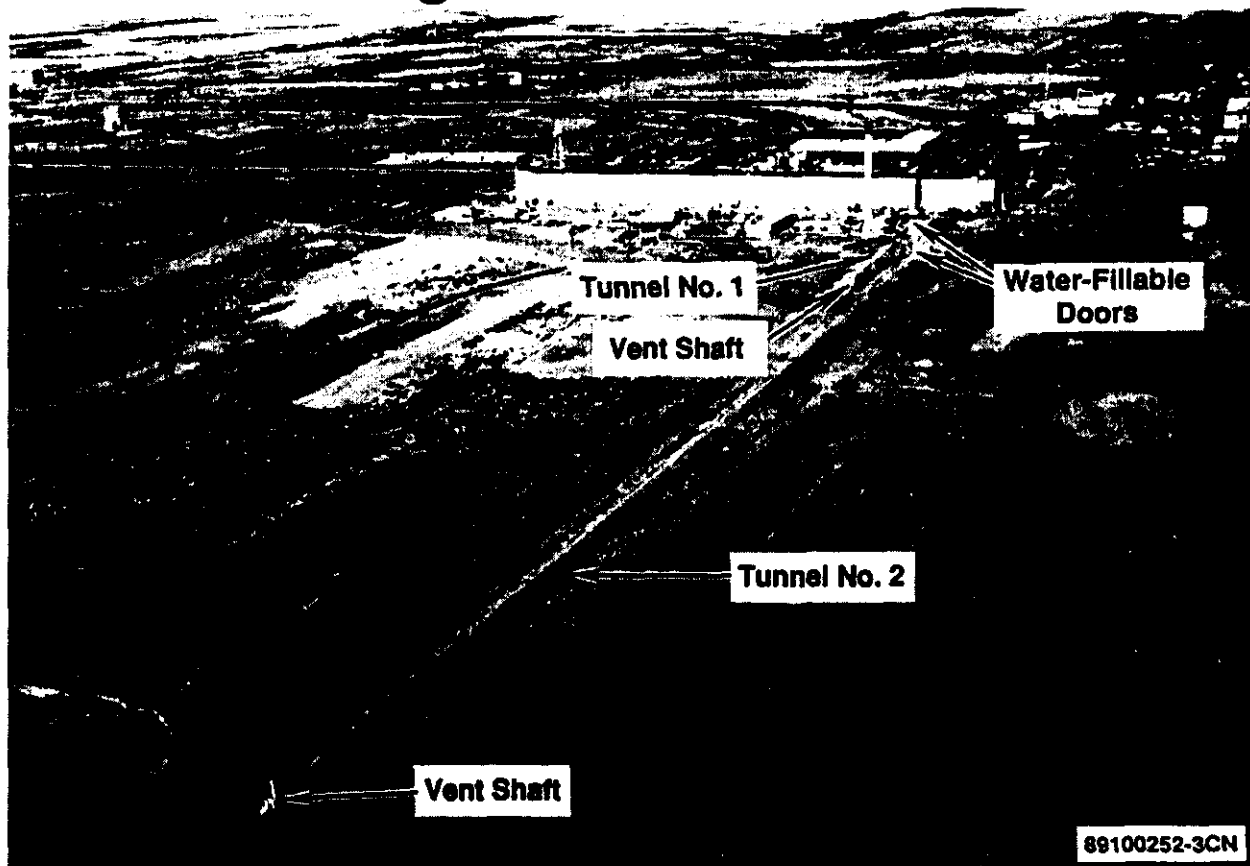


PUREX Tunnel No. 2 - Elevation View

For conversion to meters, multiply feet by 0.3048.
For conversion to centimeters, multiply inches by 2.54.

H96030108.1

PUREX Storage Tunnels



46°32'47"
119°31'07"

89100252-3CN
89100252-3CN
(PHOTO TAKEN 1989)

Hanford Facility RCRA Permit Modifications
Part III, Chapter 4 and Attachment 34
Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility

Replacement Sections

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Chapter 6.0

Chapter 7.0

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6.0 PROCEDURES TO PREVENT HAZARDS [F]

This chapter discusses security; inspection schedules; preparedness and prevention requirements; preventive procedures, structures, and equipment; and prevention of reaction of ignitable, reactive, and incompatible waste at LERF and ETF.

6.1 SECURITY [F-1]

The following sections describe the security measures, equipment, and warning signs used to control entry to LERF and ETF. Hanford Facility security measures are discussed in the General Information Portion (DOE/RL-91-28).

6.1.1 Security Procedures and Equipment [F-1a]

The following sections describe the 24-hour surveillance system, barriers, and warning signs used to provide security and to control access to LERF and ETF.

6.1.1.1 24-Hour Surveillance System

The entire Hanford Facility is a controlled-access area. For surveillance information, refer to General Information Portion (DOE/RL-91-28).

6.1.1.2 Barrier and Means to Control Entry

The LERF and ETF are protected by the 200 East Area fence. Visitors are required to be escorted. The LERF is surrounded in its entirety by a separate 2.1 meter chain link fence topped with 3 strands of barbed wire extended outward at a 45 degree angle (referred to as the operational security fence). Access to the LERF is gained through two locked vehicular gates off the perimeter road. Gate keys are retained at the 242-A Evaporator and ETF shift offices.

Persons desiring entry to ETF process area must notify the control room. These persons also must have the appropriate unit-specific training, (Chapter 8.0). The ETF personnel monitor all persons entering ETF and notify the Hanford Patrol of any attempted unauthorized entry. Immediate response by protective force personnel maintains the necessary security at the LERF and ETF.

6.1.1.3 Warning Signs

Signs bearing the legend "DANGER--UNAUTHORIZED PERSONNEL KEEP OUT," or an equivalent legend, are posted around the perimeter of LERF and ETF. The signs are in English, legible from a distance of 7.6 meters, and are visible from all angles of approach. In addition to these signs, the fences around the 200 East Area are posted with signs, printed in English, warning against unauthorized entry. These signs also are visible from all angles of approach.

6.1.2 Waiver [F-1b]

Waiver of the security procedures and equipment requirements for LERF and ETF are not requested. Therefore, WAC 173-303-310(1)(a) and (b) are not applicable to LERF and ETF.

6.2 INSPECTION PLAN [F-2]

This section describes the method and schedule for inspections of LERF and ETF. The purpose of inspections is to help ensure that situations do not exist that might cause or lead to the release of dangerous and/or mixed waste that could pose a threat to human health and the environment. Abnormal conditions identified by an inspection will be corrected on a schedule that prevents hazards to workers, the public, and the environment.

6.2.1 General Inspection Requirements [F-2a and F-2a(4)]

The content and frequency of inspections are described in this section. Inspection records are retained at the ETF, or other approved locations, for a minimum of 5 years.

In radioactive areas of the ETF, many inspections are performed remotely. Monitoring instruments are connected to audible alarms and visual indicators track alarm status. The monitoring system provides trending of selected monitoring data, graphics, and equipment summary displays.

A preventive maintenance recall system is employed to direct preventive maintenance activities at the LERF and the ETF. Equipment requiring maintenance is checked as indicated by the maintenance history and the manufacturer's recommendations. The preventive maintenance of certain equipment might not be possible if the LERF or the ETF is in an operational mode. Thus, the preventive maintenance could be performed slightly earlier or later than planned to minimize impact on operations.

Instrumentation at ETF is calibrated regularly to ensure accuracy and reliability. All process control instrumentation is calibrated on a schedule depending on previous calibration experience. An instrument calibration and recall system is employed to manage calibrations.

6.2.1.1 Types of Problems

Key components of the LERF inspection program include the following areas:

- Structural integrity of the basins
- Catch basin secondary containment system integrity
- Evidence of release from basins
- Safety, communications, and emergency equipment.

Key components of the ETF inspection program include the following areas:

- Condition of tanks and ancillary piping
- Condition of containers
- Condition of the process control equipment
- Condition of emergency equipment
- Condition of secondary containment.

Tables 6-1 and 6-2 provide a description of ETF items to be inspected.

6.2.1.2 Frequency of Inspections [F-2a(3)]

The frequency of inspections is based on the rate of possible deterioration of equipment and the probability of a threat to human health or the environment.

While in operation, the LERF is inspected weekly. The LERF also is inspected for run-on, run-off, cover integrity, and erosion problems after significant precipitation events. The ETF is inspected as indicated in Tables 6-1 and 6-2.

6.2.2 Specific Process Inspection Requirements [F-2d]

The following sections describe the specific process inspections performed at LERF and ETF.

6.2.2.1 Container Inspections [F-2d(1)]

Containers are used at the ETF to store solidified secondary waste, such as the powder waste from the thin film dryer and maintenance and operations waste. When containers are being held in the container storage area, the following inspection schedule is maintained:

- Daily visual inspection of container storage area for leaks, spills, accumulated liquids, and open or improperly sealed containers
- Weekly visual inspection of container labels to ensure labels are not obscured, removed, or otherwise unreadable

- Weekly visual inspection for deterioration of containers, containment systems, or cracks in protective coating or foundations caused by corrosion, mishandling, or other factors.

Following the inspections, an inspection datasheet is signed and dated by the inspector and supervisor.

6.2.2.2 Tank Inspections [F-2d(2)]

A description of the tank systems and ancillary equipment at the ETF is given in Chapter 4.0.

Inspections and frequencies are given in Tables 6-1 and 6-2. This section includes a brief discussion of the inspections.

6.2.2.2.1 Overfill Protection. Tanks that have the possibility of being overfilled have level instrumentation that alarms before the tanks reach overflow. High tank level alarms annunciate in the control room, allowing operating personnel to take immediate action to stop the vessels from overfilling. These alarms are monitored continuously in the control room during solution transfers.

6.2.2.2.2 Visual Inspections. Visual inspections of tanks and secondary containments are performed to check for leaks, signs of corrosion or damage, and malfunctioning equipment. Inspections are performed on tanks and the secondary containment within the ETF and the surge tank and verification tank and associated secondary containment.

6.2.2.2.3 Secondary Containment Leak Detectors. The surge tank and verification tank secondary containment systems have sloped floors that drain solution to sumps equipped with leak detectors that alarms in the control room. These alarms are monitored continuously in the control room. If an alarm is activated, further investigation is performed to determine if the source is a tank leak or other solution (i.e., precipitation).

6.2.2.2.4 Integrity Assessments. The initial integrity assessment was issued in 1995 (Chapter 4.0). Consistent with the recommendations of the integrity assessment, a periodic integrity assessment program was developed for the ETF tanks and is discussed in detail in section 4.4.2 of Chapter 4.0

6.2.2.2.5 Effluent Treatment Facility Piping. The ETF employs an extensive piping system. During inspections at the ETF, any aboveground piping is inspected visually for signs of leakage and for general structural integrity. During the visual inspection, particular attention is paid to valves and fittings for signs of cracking, deformation, and leakage.

6.2.2.3 Surface Impoundments [F-2d(6)] and Condition Assessment [F-2d(6)(a)]

The following describes the surface impoundment inspections performed at LERF.

6.2.2.3.1 Overtopping Control [F-2d(6)(a)(1)]. Under current operating conditions, 1.34 meters of freeboard is maintained at each LERF basin, which corresponds to a normal operating level of 6.1 meters, or 24.6 million liters. Level indicators at each basin are monitored to confirm that this level is not exceeded.

Before an aqueous waste is transferred into a basin, administrative controls are implemented to ensure overtopping will not occur during the transfer. The volume of feed to be transferred is compared to the available volume in the receiving basin. The transfer is not initiated unless there is sufficient volume available in the receiving basin or a cut-off level is established. The transfer into the basin would be stopped when this cut-off level is reached.

The LERF basins also are provided with floating very low-density polyethylene covers that are designed and constructed to prevent overtopping by the introduction of precipitation and dust into the basins. Overtopping and flow control also are discussed in Chapter 4.0.

6.2.2.3.2 Impoundment Contents [F-2d(6)(a)(2)]. The LERF basins are inspected weekly to assess whether the contents are escaping from a basin. Level indicators are inspected weekly to check for unaccountable change in the level of the basins.

1 **6.2.2.3.3 Leak Detection [F-2d(6)(a)(3)].** The leachate detection, collection and removal system is
2 described in Chapter 4.0. The leachate collection sump pump is activated automatically when the liquid
3 level in the leachate sump reaches a preset level. A flowmeter and totalizer measure the amount of
4 leachate removed. An inspection is performed weekly where the totalizer reading and basin level
5 reading are used to determine the leak rate per wetted surface area. The leak rate is compared to
6 previous rates to see if leakage has increased.

7 The LERF employs a double-walled transfer piping between 242-A Evaporator and LERF and between
8 LERF and ETF. The WAC 173-303-650 regulations do not require a discussion of piping for surface
9 impoundments. However, for the purposes of comprehensive coverage of the LERF, inspections and
10 integrity assessments are performed on the piping system. Aqueous waste (e.g., process condensate) is
11 transferred from the 242-A Evaporator to the LERF via a buried pipeline. Likewise, aqueous waste is
12 transferred to the ETF via buried pipelines. At the LERF dikes, aboveground piping serves to transfer
13 waste from one basin to another.

14 The buried pipelines are normally continuously monitored during transfers by a leak detection system
15 (Chapter 4.0). The alarms on the leak detection system are monitored in the 242-A Evaporator and ETF
16 control rooms. As an alternative to continuous leak detection, the transfer lines can be inspected daily
17 during transfers by opening the secondary containment drain lines at the LERF catch basins (for
18 242-A Evaporator transfers to LERF) and the surge tank (for LERF transfers to ETF) to inspect for
19 leakage. During the routine inspections at LERF, the aboveground piping system is inspected for signs
20 of leakage and for general structural integrity. During the visual inspection, particular attention is paid to
21 valves and fittings for signs of cracking, deformation, and leakage.

22 **6.2.2.3.4 Dike Erosion [F-2d(6)(a)(4)].** The LERF basins and dikes are visually inspected weekly and
23 after storms for severe erosion or other signs of deterioration in the dikes from precipitation, wind,
24 burrowing mammals, or vegetation.

25 **6.2.2.3.5 Structural Integrity [F-2d(6)(b)].** A written certification attesting to the structural integrity of
26 the basin dikes, signed by a qualified, registered professional engineer, is provided in Chapter 4.0.

27 **6.2.2.3.6 Container Inspection [F-2b(1)].** Normal operation of the LERF does not involve the storage
28 of dangerous waste in containers. Therefore, the inspection requirements of this section normally are not
29 applicable to the LERF. Any containerized RCRA-regulated waste that might be generated at LERF will
30 be brought to the ETF and managed in accordance with WAC 173-303-200(1) and is discussed in
31 Section 6.2.2.1.

32 **6.2.3 Inspection Log [F-2b and 2c]**

33 Observations made and deficiencies noted during an inspection are recorded on inspection log sheets
34 (also called turnover sheets). On completion, the log sheet includes the inspector's printed name,
35 signature, date, and time; the log sheet is submitted for review and approval by ETF/LERF management
36 or their designee, as required by operating procedures. Once approved, the log sheet is kept in LERF and
37 ETF files. Inspection records are retained at the ETF, or other approved locations, for a minimum of 5
38 years. The inspection records are used to help determine any necessary corrective actions. Problems
39 identified during the inspections are prioritized and addressed in a timely fashion to mitigate health risks
40 to workers, maintain integrity of the TSD units, and prevent hazards to public health and the
41 environment.

42 If while performing an inspection, a leak or spill is discovered, facility management responds per the
43 building emergency plan (Appendix 7A). Action is taken to stop the leak and determine the cause. The
44 waste is removed from the secondary containment in a timely manner that prevents harm to human
45 health and the environment.

6.2.4 Storage of Ignitable or Reactive Wastes [F-2d(3)]

The LERF could receive an aqueous waste that is designated reactive or ignitable. Any aqueous waste exhibiting these characteristics is managed (e.g., through blending in LERF) such that the waste no longer exhibits the reactive or ignitable characteristics.

Though unlikely, the ETF secondary waste might have the characteristics of being reactive or ignitable. The Hanford Fire Department performs annual fire inspections of the ETF using a checklist developed specifically for facilities that handle dangerous and/or mixed waste.

6.3 PREPAREDNESS AND PREVENTION REQUIREMENTS [F-3]

The following sections document the preparedness and prevention measures taken at LERF and ETF.

6.3.1 Equipment Requirements [F-3a]

The following sections describe the internal and external communications systems and the emergency equipment required.

6.3.1.1 Internal Communications

When operators are present at the LERF, the operators carry mobile (hand-held) two-way radios to maintain contact with 242-A Evaporator and ETF personnel. The operators at LERF are informed of emergency situations (e.g., building and/or area evacuations, take-cover events, high airborne contamination, fire, and/or explosion), and are provided with emergency instructions by several systems. These systems include the mobile two-way radios, and the telephone in the LERF instrument building.

The ETF is equipped with an internal communication system to provide immediate emergency instruction to personnel. The onsite communication system at the ETF includes telephones, mobile two-way radios, a public address system, and alarm systems. The telephone and radio systems provide for intraplant communication as well as external communication. Provisions are made to appropriately respond to various emergencies, including the following alarm-activated emergency situations: building evacuations, fire and/or explosion, loss of essential services, loss of ventilation, radioactive discharges, and high airborne contamination. Chapter 7.0 provides additional information on the response activities.

Immediate emergency instruction to personnel is provided by a public address system via speaker horns and ceiling-mounted speakers located throughout the building. The public address system is coupled to building telephone systems to provide telephone accessed voice paging. The ETF alarms are annunciated via elements of the public address system. The general telephone system, which carries various communication signals (e.g., telephone, crash alarm), is linked to the Hanford Site integrated voice data telecommunications system.

6.3.1.2 External Communications [F-3a(2)]

The LERF and its operators are equipped with devices for summoning emergency assistance from the Hanford Fire Department, the Hazardous Materials Response Team, and/or local emergency response teams, as necessary. External communication is made by either a telephone communication system or mobile two-way radios. The LERF telephone is available in the instrumentation building. Personnel assigned to emergency response organizations are reached in the following ways:

- Telephone number 911--is the contact point for the Hanford Site; on notification, the Hanford Patrol Operations Center notifies and/or dispatches required emergency responders
- Telephone number 373-3800--single point of contact for the emergency duty officer; this number can be dialed from any Hanford Site telephone
- Two-way radio system--consists of hand-held; the system accesses the Hanford Site emergency network and can summon the Hanford Fire Department, Hanford Patrol, and/or any other assistance needed to deal with emergencies.

- 1 • The ETF is equipped with devices for summoning emergency assistance from the Hanford Fire
2 Department and/or local emergency response teams as necessary. External communication is made
3 via a telephone communication system or two-way radios.
- 4 Telephones are provided at numerous locations throughout the ETF. In addition, the following external
5 communication systems are available for notifying persons assigned to emergency response
6 organizations:
- 7 • Fire alarm pull boxes and fire sprinkler flow monitoring devices-- connected to a system monitored
8 around the clock by the Hanford Fire Department
- 9 • Telephone number 911--contact point for the Hanford Site; on notification, the Hanford Patrol
10 Operations Center notifies and/or dispatches required emergency responders
- 11 • Telephone number 373-3800--single point of contact for the emergency duty officer; this number can
12 be dialed from any Hanford Facility telephone
- 13 • Crash alarm telephone system--consists of selected telephones that automatically are disassociated
14 from the regular system and connected to control stations
- 15 • Priority message system (Management Bulletin)--a network of telefax machines used to disseminate
16 information to personnel
- 17 • The DOE-RL radio system--radio systems and frequencies available for emergency communications.

18 **6.3.1.3 Emergency Equipment [F-3a(3)]**

19 The LERF and ETF rely primarily on the Hanford Fire Department to respond to fires and other
20 emergencies. The Hanford Fire Department is capable of providing rapid response to fires within the
21 200 East Area. All LERF and ETF operators are familiar with the LERF and ETF contingency plans
22 (Chapter 7.0) and are trained in the use of emergency pumping, fire, and communications equipment.
23 The Hanford Site maintains a sufficient inventory of heavy equipment (i.e., bulldozers, cranes, road
24 graders) for emergency response.

25 Portable fire extinguishers, fire control equipment, spill control equipment, and decontamination
26 equipment are available at various locations in the ETF.

27 Fire control equipment is available at the ETF and could include the following:

- 28 • Fire extinguishers (all-utility use, dry chemical), good for use on small fires
- 29 • Automatic fire suppression systems installed in the ETF control room and electrical room
- 30 • Fire alarm pull boxes
- 31 • A water spray system is installed in the operating and administrative portions of the ETF.

32 Respirators, hazardous material protective gear, and special work procedure clothing for ETF personnel
33 are kept in the change room at the ETF. Safety showers are located in convenient locations in the ETF.
34 Portable emergency eye washes are used at the ETF. Water for these devices is supplied from the ETF
35 sanitary water system.

36 **6.3.1.4 Water for Fire Control [F-3a(4)]**

37 A water main is not provided to the LERF. Water for fire control is supplied by the Hanford Fire
38 Department trucks for fires requiring high water volume and pressure. Each fire station normally has a
39 truck equipped with a hydraulically operated aerial ladder, and one pumper (backup fire engine, without
40 a boom, that is used if the aerial ladder is inoperable). Fire engines have a pumping capacity of at least
41 5,600 liters of water per minute. Other fire protection equipment uses chemicals rather than water as an
42 extinguishing media.

The ETF is serviced by two 12-inch raw water lines that are tied into the 200 East Area raw water distribution grid. These lines provide a looped configuration that supplies two independent sources of raw water for fire protection and raw water uses. Connections from the ETF raw water system supply fire hydrants and the wet-pipe sprinkler system.

In the event that water pressure is lost, the Hanford Fire Department is equipped with fire engines to provide needed water.

6.3.2 Aisle Space Requirement [F-3b]

The operation of the LERF does not involve aisle space. Nevertheless, the LERF and the individual basins are easily accessible to emergency response personnel and vehicles. A 6.1-meter-wide service road runs along the base of the basin area on the east, south, and west sides within the operational security fence.

Aisle spacing at ETF is sufficient to allow the movement of personnel and fire protection equipment in and around the containers. This storage arrangement also meets the requirements of the National Fire Protection Association and the Life Safety Code (NFPA 1996) for the protection of personnel and the environment. A minimum 0.76-meter aisle space is maintained between rows of containers as required by WAC 173-303-630(5)(c).

6.4 PREVENTIVE PROCEDURES, STRUCTURES, AND EQUIPMENT [F-4]

The following sections describe preventive procedures, structures, and equipment.

6.4.1 Unloading Operations, Spill Prevention, and Control [F-4a]

Underground pipelines that transfer aqueous waste to and from the LERF are encased in a secondary pipe. If a leak is detected in a pipeline, flow in the pipeline will be stopped and the cause of the leak investigated and remediated.

If it is required to transfer aqueous waste from one LERF basin to another, submersible pumps are located in risers at the northwest corner of a basin. Valves are closed or opened depending on the direction of the fluid transfer. Pumps are started, providing a cumulative flow of between 2,000 and 3,000 liters per minute into another basin.

The ETF Load-In Station is monitored continuously during tank-filling operations and filling is stopped immediately if leaks occur. Care is taken to ensure that even minor leaks are cleaned up immediately and disposed of in accordance with approved management procedures. Any spill that is determined to be a dangerous waste will be managed according to the requirements of WAC 173-303.

6.4.2 Run-Off [F-4b]

The LERF is constructed and operated to ensure that all aqueous waste is contained within the basins. The basins are designed and operated to prevent overtopping (Section 6.2.2.3.1). Furthermore, the basins are provided with very low-density polyethylene floating covers to prevent the introduction of precipitation into the basins. The basins also are graded to ensure that all precipitation outside the basins is directed away from the surface impoundments.

The basins are constructed so that the top of the basin dikes are approximately 3 meters abovegrade. The exterior side slopes of the basins have a 2.25 (horizontal) to 1 (vertical) slope. Run-on of precipitation to the basins from the surrounding area is not possible because the surrounding area slopes away from the LERF.

Dangerous waste and hazardous chemical handling areas at the ETF are designed to contain spills, leaks, and wash water, thereby preventing run-off and subsequent releases. All dangerous and/or mixed waste loading and unloading areas are provided with secondary containment structures as described in Chapter 4.0.

6.4.3 Water Supplies [F-4c]

The LERF uses operating practices, structures, and equipment to prevent the contamination of natural water supplies (i.e., groundwater and surface water). The LERF is monitored closely during operation to detect abnormal conditions (e.g., leaks), and regularly inspected to detect equipment and structural deteriorations that could allow possible water supply contamination. The basins are provided with a leachate collection system that is designed to contain any leachate generated. These systems, in conjunction with the double-composite liner system and underlying low permeable clay liner, ensure that should a release occur, the release will be fully contained within the basin configuration and, therefore, water supplies will be protected. Appendix 7A provides information on procedures that are implemented if a release is detected at the LERF.

There are no drinking water wells near the ETF. Therefore, a release would not immediately contaminate drinking water supplies. The ETF uses operating practices, structures, and equipment to prevent the contamination of natural water supplies (i.e., groundwater and surface water). The ETF is monitored during operation to detect abnormal conditions, and is inspected regularly to detect equipment and structural deteriorations that could allow spills to the environment. Areas in contact with dangerous and/or mixed waste are monitored continuously during operation through a series of level and pressure indicators, leak detection alarms, equipment failure alarms, and control panel readouts. In addition, the ETF is inspected regularly for the presence of leaks or other offnormal conditions wherever possible (in all areas that can be safely entered).

In addition to detailed operating practices, structures and equipment are used at the ETF to prevent contamination of water supplies. The structures and equipment designed to prevent contamination of water supplies are the same as the structures and equipment used to prevent run-off from dangerous and/or mixed waste handling areas.

6.4.4 Equipment and Power Failure [F-4d]

The storage function of the LERF is not affected by loss of power and a temporary loss of power would not pose a threat to the environment. Loss of electrical power would not cause the storage of the waste to be jeopardized. For process condensate transferred from the 242-A Evaporator, appropriate valving procedures are followed to ensure a smooth restart of the flow to the LERF in the event of a power failure at the 242-A Evaporator. Pump equipment failure is addressed by operations personnel at the 242-A Evaporator.

The ETF does not have a standby power source. Power to selected lighting, computers, and process controls is configured with an uninterruptible power supply. During partial loss of normal power, the effected pumps and subsystems will be shut down. Complete loss of power to the ETF shuts down the entire ETF except for the instruments in the control room connected to the uninterruptible power supply. Redundant pumps allow the process to continue to operate when only one component is out of service.

When power at the ETF is lost, the valves assume a fail-safe position to allow the process to remain in a safe shutdown mode until restoration of power. This action allows the operators to perform equipment surveys during shutdown and to confirm that there are no safety issues because the ETF is shut down. Because a power failure would also shutoff flow into the ETF, there will not be any increase in volume in any of the holdup basins, tanks, or other systems.

A combination of reliability, redundancy, maintenance, and repair features are used in the ETF equipment and systems to minimize random failure of equipment. For crucial systems such as ventilation filters, redundant trains are provided to mitigate equipment and system failure. Spare parts are maintained for essential production and safety equipment.

6.4.5 Personnel Exposure [F-4e]

At the LERF and ETF, operating practices, structures, and equipment are used to prevent undue exposure of personnel to dangerous and/or mixed waste. Protective clothing and equipment are used by all personnel handling waste. All operations are conducted so that exposure to dangerous and/or mixed waste, and hazardous and radioactive materials are maintained ALARA.

Protective clothing and equipment are prescribed for personnel handling chemicals or dangerous waste. Before the start of any operation that could expose personnel to the risk of injury or illness, a review of the operation is performed to ensure that the nature of hazards that might be encountered is considered and appropriate protective gear is selected. Personnel are instructed to wear personal protective equipment in accordance with training, posting, and instructions.

A change trailer at LERF is located between basins 42 and 43. In addition, the change trailer has an operations office for working with procedures. Exits within the change trailer are clearly marked. A storage building is located within the perimeter fence, northwest of the basins. The LERF storage building also is provided with separate storage areas for clean and contaminated equipment. A decontamination shower and decontamination building is located at the 272-AW Building, approximately 1.6 kilometers from the LERF or at the ETF.

The ETF has eyewash stations and safety showers in convenient locations for use by personnel. The following structures and equipment were incorporated into the ETF design to minimize personnel exposure.

- Offices, control room, clean- and soiled-clothes storage areas, change rooms, and the lunchroom are situated to minimize casual exposure of personnel.
- Building exit pathways are located to provide rapid egress in emergency evacuations.
- Emergency lighting devices are located strategically throughout the ETF.
- Audio and/or visual alarms are provided for all room air samplers, area alarms, and liquid monitors. Visual readouts for these alarm systems are located in less contaminated areas to minimize exposure to personnel.
- Areas for decontaminating and maintaining equipment are provided in contaminated areas to limit the spread of contamination to uncontaminated areas such as the control room.
- Instrument interlock systems are provided that automatically return process operations to a safe condition if an unsafe condition should occur.
- The ETF ventilation systems are designed to provide air flow from uncontaminated zones to progressively more contaminated zones.

Whenever possible, exposures to hazards are controlled by accepted engineering and/or administrative controls. Protective gear is used where effective engineering or administrative controls are not feasible.

6.5 PREVENTION OF REACTION OF IGNITABLE, REACTIVE, AND INCOMPATIBLE WASTE [F-5 through F-5b]

Typically aqueous waste managed at the LERF or ETF does not display the characteristics of reactivity or ignitability. Any aqueous waste streams exhibiting these characteristics are blended or mixed at LERF to a concentration where the waste no longer exhibits reactive or ignitable characteristics.

No incompatible aqueous waste is expected to be stored or treated at the LERF or ETF (Chapter 3.0). Therefore, the requirements of WAC 173-303-806(4)(a) are not applicable.

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Table 6-1. Visual Inspection Schedule for the ETF

Item	Inspection	Frequency	Inspected by
Main Treatment Train			
Surge tank system	Inspect area for leaks. Note any unusual noises or vibration from the system pumps. Inspect secondary containment system for signs of deterioration.	Daily	Process operator
Rough filter	Inspect for leaks.	Daily*	Process operator
Ultraviolet oxidation system	Inspect module for leaks. Inspect peroxide storage tank, ancillary equipment for leaks.	Daily*	Process operator
pH adjustment tank	Inspect tank and ancillary equipment for leaks.	Daily*	Process operator
H ₂ O ₂ decomposer	Inspect tank and ancillary equipment for leaks.	Daily*	Process operator
Fine filter	Inspect module for leaks.	Daily*	Process operator
Degasification system	Inspect module for leaks. Note any unusual noises or vibration from the degasification blower.	Daily*	Process operator
Reverse osmosis system	Inspect tanks and ancillary equipment for leaks. Note any unusual noises or vibration from the system pumps.	Daily*	Process operator
Polishers	Inspect tanks and ancillary equipment for leaks.	Daily*	Process operator
Effluent pH adjustment tank	Inspect tank and ancillary equipment for leaks.	Daily*	Process operator
Verification tanks	Inspect tanks and ancillary equipment for leaks. Note any unusual noises or vibration from the system pumps. Inspect secondary containment system for signs of deterioration.	Daily	Process operator
Secondary Treatment Train			
Secondary waste receiving tank	Inspect tank and ancillary equipment for leaks.	Daily	Process operator
ETF evaporator	Inspect tank and equipment for leaks. Note any unusual noises or vibration from the system pumps or compressor.	Daily*	Process operator
Concentrate tank	Inspect tank and ancillary equipment for leaks.	Daily*	Process operator

Item	Inspection	Frequency	Inspected by
Thin film dryer	Inspect tanks and ancillary equipment for leaks (viewed through camera). Note any unusual noises or vibration from the system pumps or blower.	Daily*	Process operator
Container handling	Inspect area for spills, leaks, accumulated liquids.	Daily	Process operator
Container handling	Inspect for deterioration of containers and secondary containment, including corrosion and cracks in secondary containment foundation and coating. Inspect container labels to ensure that they are readable.	Weekly	Process operator
Resin dewatering	Inspect module for leaks. Note any unusual noises or vibration from the system pumps or blower.	Daily*	Process operator
Support Systems			
Vessel ventilation system	Inspect filters (HEPA and pre-filters), check vessel off-gas pressures, system flow, and discharge temperatures.	Daily	Process operator
Sump tank system	Inspect sump trenches for unexpected liquids which indicate spills or leaks from process equipment.	Daily	Process operator
Safety Systems			
Eye wash stations	Check status; check for adequate pressure.	Monthly	Process operator
Safety showers	Check status; check for adequate pressure.	Monthly	Process operator
Emergency Systems			
Fire extinguishers	Check for adequate charge.	Monthly	Process operator
Emergency lighting	Test operability.	Monthly	Process operator
Processing Area			
Uninterruptible power supply	Check output voltage and visually inspect battery pack for corrosion and leakage. Check indicator lights for fault conditions.	Annually	Electrician/ process operator
* Stated inspection frequency to be performed only during ETF operations.			
HEPA – High efficiency particulate air			

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Table 6-2. Inspection Plan for Instrumentation Monitoring

Item	Inspection	Frequency	Inspected by
Main Treatment Train			
Leak detector LAH-20B009	Monitor for leakage in the surge tank drainage sump.	Continuously	Computer Process Operator
Level alarm LAH-60A013	Monitor surge tank level to prevent overflow.	Continuously	Computer Process Operator
Level alarm LAHL-60C-111	Monitor liquid levels in the pH adjustment tank to prevent overflow.	Continuously	Computer Process Operator
Level alarm LAHL-60F-101	Monitor liquid levels in the first RO feed tank to prevent overflow.	Continuously	Computer Process Operator
Level alarm LAHL-60F-201	Monitor liquid levels in the second RO feed tank to prevent overflow.	Continuously	Computer Process Operator
Level alarms LAHL-60F-211	Monitor liquid levels in the effluent pH adjustment tank to prevent overflow.	Continuously	Computer Process Operator
Level transmitter LAHX-60H001A/B/C	Monitor liquid level in verification tanks to prevent overflow.	Continuously	Computer Process Operator
Leak detector LAH-20B010	Monitor for leakage in the verification tank drainage sump.	Continuously	Computer Process Operator
Secondary Treatment Train			
Level alarm LAHL-60I-001A/B	Monitor liquid levels in secondary waste receiver tanks A and B to prevent overflow.	Continuously	Computer Process Operator
Level alarm LAHL-60J-001A/B	Monitor liquid levels in concentrate tanks A and B to prevent overflow.	Continuously	Computer Process Operator
Level alarm LAHL-60I-107	Monitor liquid levels in the evaporator tank to prevent overflow.	Continuously	Computer Process Operator
Level alarm LAHL-60J-036	Monitor liquid levels in the spray condenser tank to prevent overflow.	Continuously	Computer Process Operator
Level alarm LAHL-60I-108	Monitor liquid levels in the distillate flash tank to prevent overflow.	Continuously	Computer Process Operator
Level alarm LAH-60I-119	Monitor liquid levels in the entrainment separator tank to prevent overflow.	Continuously	Computer Process Operator
Level transmitter LAH-20B001	Monitor liquid level in sump tank No. 1 to prevent overflow.	Continuously	Computer Process Operator
Level transmitter LAH-20B002	Monitor liquid level in sump tank No. 2 to prevent overflow.	Continuously	Computer Process Operator
Leak detector LAH-20B003	Monitor for leakage to sump No. 1.	Continuously*	Computer Process Operator
Leak detector LAH-20B005	Monitor for leakage to sump No. 2.	Continuously*	Computer Process Operator

Item	Inspection	Frequency	Inspected by
Leak detector	Monitor for leakage from pipeline between ETF and load-in station.	Continuously*	Computer Process Operator
Leak detector	Monitor for leakage from pipeline between ETF and LERF.	Continuously*	Computer Process Operator
Leak detector	Monitor for leakage from pipeline between LERF and the 242-A Evaporator.	Continuously*	Computer Process Operator
* In the event of a malfunction of one of the electronic leak detectors, daily visual inspections will be performed while the facilities are in operation.			

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APPENDIX

7A	BUILDING EMERGENCY PLAN FOR LIQUID EFFLUENT RETENTION FACILITY AND 200 AREA EFFLUENT TREATMENT FACILITY	APP 7A-i
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TABLE

Table 7-1.	Hanford Facility Documents Containing Contingency Plan Requirements of WAC 173-303-350(3)	T7-3
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7.0 CONTINGENCY PLAN [G]

The WAC 173-303 requirements for a contingency plan are satisfied in the following documents:

Portions of the *Hanford Emergency Management Plan* [Attachment 4 of the HF RCRA Permit (DW Portion)] and portions of the *Building Emergency Plan for Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility* (Appendix 7A).

The unit-specific building emergency plan also serves to satisfy a broad range of other requirements [e.g., Occupational Safety and Health Administration standards (29 CFR 1910), *Toxic Substance Control Act of 1976* (40 CFR 761) and U.S. Department of Energy Orders]. Therefore, revisions made to portions of this contingency plan document that are not governed by the requirements of WAC 173-303 will not be considered as a modification subject to WAC 173-303-830 or Hanford Facility RCRA Permit (DW Portion) Condition I.C.3.

Table 7-1 identifies which portions of the building emergency plan are written to meet WAC 173-303 contingency plan requirements. In addition to the building emergency plan portions identified in Table 7-1, Section 12.0 of the building emergency plan is written to meet WAC 173-303 requirements identifying where copies of the *Hanford Emergency Management Plan* and the building emergency plan are maintained on the Hanford Facility. Therefore, revisions to Section 12.0 of the building emergency plan and the portions identified in Table 7-1 are considered a modification subject to WAC 173-303-830 or Hanford Facility RCRA Permit (DW Portion) Condition I.C.3.

Table 7-1. Hanford Facility Documents Containing Contingency Plan Requirements of WAC 173-303-350(3).

Requirement	<i>Hanford Emergency Management Plan</i> DOE/RL-94-02: Attachment 4 of the HF RCRA Permit (DW Portion)	Building Emergency Plan ¹ (HNF-IP-0263-ETF)
-350(3)(a) - A description of the actions, which facility personnel must take to comply with this section and WAC 173-303-360.	X ² Section 1.3.4	X ² Sections 7.1, 7.2 through 7.2.5, and 7.3 ¹ Sections 4.0 (1 st paragraph), 8.2, 8.3, 8.4, 11.0
-350(3)(b) - A description of the actions which shall be taken in the event that a dangerous waste shipment, which is damaged or otherwise presents a hazard to the public health and the environment, arrives at the facility, and is not acceptable to the owner or operator, but cannot be transported pursuant to the requirements of WAC 173-303-370(5), Manifest system, reasons for not accepting dangerous waste shipments.	X ² Section 1.3.4	X ^{2,4} Section 7.2.5.1
-350(3)(c) - A description of the arrangements agreed to by local police departments, fire departments, hospitals, contractors, and state and local emergency response teams to coordinate emergency services as required in WAC 173-303-340(4).	X Sections 3.2.3, 3.3.1, 3.3.2, 3.4, 3.4.1.1, 3.4.1.2, 3.4.1.3, 3.7, and Table 3-1	
-350(3)(d) - A current list of names, addresses, and phone numbers (office and home) of all persons qualified to act as the emergency coordinator required under WAC 173-303-360(1). Where more than one person is listed, one must be named as primary emergency coordinator, and others must be listed in the order in which they will assume responsibility as alternates. For new facilities only, this list may be provided to the department at the time of facility certification (as required by WAC 173-303-810 (14)(a)(I)), rather than as part of the permit application.		X ⁵ Section 3.1, 13.0
-350(3)(e) - A list of all emergency equipment at the facility (such as fire extinguishing systems, spill control equipment, communications and alarm systems, and decontamination equipment), where this equipment is required. This list must be kept up to date. In addition, the plan must include the location and a physical description of each item on the list, and a brief outline of its capabilities.	X Hanford Fire Department: Appendix C	X Section 9.0
-350(3)(f) - An evacuation plan for facility personnel where there is a possibility that evacuation could be necessary. This plan must describe the signal(s) to be used to begin evacuation, evacuation routes, and alternate evacuation routes.	X ⁶ Figure 7-3 and Table 5-1	X ⁷ Section 1.5

1 An "X" indicates requirement applies.

2 ¹ Portions of the *Hanford Emergency Management Plan* not enforceable through Appendix A of that
3 document are not made enforceable by reference in the building emergency plan.

1 ²The *Hanford Emergency Management Plan* contains descriptions of actions relating to the Hanford
2 Site Emergency Preparedness System. No additional description of actions are required if at the site
3 level. If other credible scenarios exist or if emergency procedures at the unit are different, the
4 description of actions contained in the building emergency plan will be used during an event by a
5 building emergency director.

6 ³Sections 7.1, 7.2 through 7.2.5, and 7.3 of the building emergency plan are those sections subject to
7 the Class 2 "Changes in emergency procedures (i.e., spill or release response procedures)" described in
8 WAC 173-303-830 Appendix I Section B.6.a.

9 ⁴This requirement only applies to TSD units, which receive shipment of dangerous or mixed waste
10 defined as off-site shipments in accordance with WAC 173-303.

11 ⁵Emergency Coordinator names and home telephone numbers are maintained separate from any
12 contingency plan document, on file in accordance with Hanford Facility RCRA Permit, DW Portion,
13 General Condition II.A.4. and is updated, at a minimum, monthly.

14 ⁶The Hanford Facility (sitewide) signals are provided in this document. No unit/building signal
15 information is required unless unique devices are used at the unit/building.

16 ⁷An evacuation route for the TSD unit must be provided. Evacuation routes for occupied buildings
17 surrounding the TSD unit are provided through information boards posted within buildings.

APPENDIX 7A

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**BUILDING EMERGENCY PLAN FOR 200 AREA EFFLUENT TREATMENT FACILITY
AND LIQUID EFFLUENT RETENTION FACILITY**

1 Because the ETF, LERF, and the 200 Area Treated Effluent Disposal Facility (TEDF) are operated and
2 managed by the same organization, the scope of this unit-specific building emergency plan addresses the
3 200 Area TEDF in addition to the ETF and LERF. The 200 Area TEDF is a conveyance and disposal
4 system for non-hazardous, non-mixed wastewaters. Sections 1.4.3, 1.5.3, 5.3, and 6.1.3 pertain to the 200
5 Area TEDF, therefore, are included for completeness but are not subject to the requirements of
6 WAC 173-303.

7

8

WASTE MANAGEMENT PROJECT**Document: HNF-IP-0263-ETF****BUILDING EMERGENCY PLAN
FOR ETF/LERF****Revision: 6****Page: i of iv****Effective Date: September 15, 2000**

This plan covers the following buildings and structures:

200 Area Effluent Treatment Facility (ETF),
Liquid Effluent Retention Facility (LERF),
200 Area Treated Effluent Disposal Facility (TEDF), and
200 Area Effluent Treatment Facility Groundwater Transfer System (GTS).

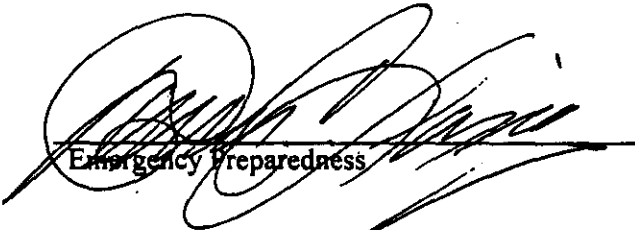
Approved:


Facility Management

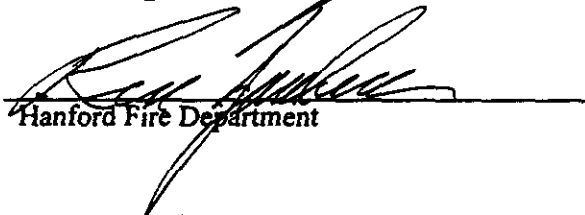
9/12/00
Date


Environmental Compliance Officer

9/14/00
Date


Emergency Preparedness

9-8-00
Date


Hanford Fire Department

9-13-00
Date

This document will be reviewed annually and updated if necessary by the Facility Management unless Hanford Facility RCRA Permit coordination requirements provides otherwise. The document will be approved by Facility Management and approved by the Manager of Emergency Preparedness (or delegate) and the Hanford Fire Department.

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1.0 GENERAL INFORMATION

The 200 Area Effluent Treatment Facility (ETF) and the Liquid Effluent Retention Facility (LERF) are located in the northeast portion of the 200 East Area. The 200 Area Treated Effluent Disposal Facility (TEDF) and 200 Area ETF Groundwater Transfer System (GTS) are operated from the 2025E Building. Transfer piping systems for both TEDF and GTS are located in the 200 East and 200 West Areas. 200 East and 200 West Areas are located near the center of the Hanford Site, a 560-square-mile U.S. Department of Energy (DOE) site in southeastern Washington State. The Hanford Site Emergency Preparedness Program is based upon the incident command system which allows a graded approach for response to emergency events. This plan contains a description of facility specific emergency planning and response. It is used in conjunction with DOE/RL-94-02, *Hanford Emergency Management Plan*. Response to events is performed using facility specific and/or site-level emergency procedures.

1.1 Facility Names

U.S. Department of Energy Hanford Site

200 Area Effluent Treatment Facility (ETF)

Liquid Effluent Retention Facility (LERF)

200 Area Treated Effluent Disposal Facility (TEDF)

200 Area ETF Groundwater Transfer System.

1.2 Facility Locations

Benton County, Washington; within the 200 East and 200 West Areas.

ETF Buildings/facilities covered by this plan are:

- 2025E Building, Effluent Treatment Facility
- 2025EA Building, ETF Administration Building
- MO-269, Materials Control Trailer
- (2025ECT1) Load-in Station, Tanker truck load-in station.

LERF Buildings/facilities covered by this plan are:

- Basins 42, 43, and 44, Liquid Effluent Retention Facility
- MO-727 Change Trailer, Located directly between Basins 42 and 43
- 242AL71 Instrument Building, Located north between Basins 42 and 43
- Electrical Power Substation, North side of LERF
- 242AL11 Storage Building, LERF Garage.

TEDF and GTS Buildings/facilities covered by this plan are:

- Transfer piping, 200 East and West areas
- 225W Building, Pump House 1 - 200 West Area
- 225E Building, Pump House 2 - 200 East Area
- 6653A Building, Pump House 3 - 200 East Area
- 6653 Building, Disposal Sampling Building.

1.3 Owner:

U.S. Department of Energy
Richland Operations Office
825 Jadwin Avenue
Richland, Washington 99352

Facility Manager:

Waste Management Project
P.O. Box 700
Richland, Washington 99352

Organization:

200 Area Liquid Waste Processing Facilities (LWPF)

1.4 Description of the Facility and Operations**1.4.1 Effluent Treatment Facility**

The ETF treats various aqueous wastes generated at the Hanford site prior to discharging the effluent to a State Approved Land Disposal Site (SALDS), located adjacent to the 200 West Area.

The ETF operations structure is comprised of the following:

- Process area in 2025E Building
- Administration areas in 2025E and 2025EA Buildings
- Load-in Station 291
- External tank storage area.

The 2025E Building is a two story structure, with a control room on the second level overlooking the process area. The process area is a high bay, single story area of the 2025E Building. The process area is a Radiological Buffer Area (RBA). The RBA is a posted area and contains various Contamination Areas. The entire 200 East Area is classified as a Radiological Controlled Area.

The external tank storage area is inside the fenced area immediately outside of the 2025E Building. The 200 East Area security fence encloses the ETF except for the discharge line from the verification tanks to the SALDS. This fence is used to control personnel access and exclude deer and other large animals from the facility.

Figure 1 shows the evacuation routes from the 2025E Building.

Figure 2 shows the ETF/LERF site staging areas.

1.4.2 Liquid Effluent Retention Facility

The LERF consists of three identical surface impoundments constructed with primary and secondary composite liners, a leachate detection, collection, and removal system between liners, and a floating cover. The LERF basins act as an interim storage location for aqueous waste from the 242-A Evaporator, groundwater, and other site remediation projects prior to treatment at ETF.

The LERF is a basin operations structure comprised of the following:

- Excavation and dikes (basins)
- Primary and secondary composite liners
- Leachate detection, collection, and removal system

- Cover
- Piping and pumps
- MO-727 - Change trailer
- 242AL71 Instrument Building
- 242AL11 Storage Building.

1.4.3 200 Area Treated Effluent Disposal Facility and Groundwater Transfer System

The 200 Area TEDF transports the 200 East and West Area facility effluents to a common disposal system. TEDF consists of approximately 62,000 feet of collection and transfer system piping, three pump stations, a sample building, and two 5-acre disposal ponds located southeast of ETF. The TEDF accepts liquid effluents from numerous sources in the 200 East and 200 West Areas that meet environmental permit requirements for disposal in the disposal ponds.

The GTS transfers groundwater extracted from the 200-UP-1 Operable Unit for interim storage at LERF and subsequent treatment at ETF. The system boundary begins at the first flowmeter from the 200-UP-1 pumps in the 200 West Area and ends at the connection to the LERF basins sample riser.

Figure 3 shows the major facility structures and liquid effluent sources for the SALDS, TEDF, and GTS.

1.5 Building Evacuation Routing

Figures 1 and 2 show building evacuation routes and staging areas.

1.5.1 Effluent Treatment Facility

The 2025E Building evacuation routes are shown in Figure 1. Primary and Alternate staging areas are shown in Figure 2.

1.5.2 Liquid Effluent Retention Facility

Primary and alternate staging areas are shown in Figure 2.

1.5.3 Treated Effluent Disposal Facility

Figure 3 shows the TEDF location.

1.5.4 Groundwater Transfer System

Figure 3 shows the GTS location.

Figure 1. Evacuation Routes from 2025E

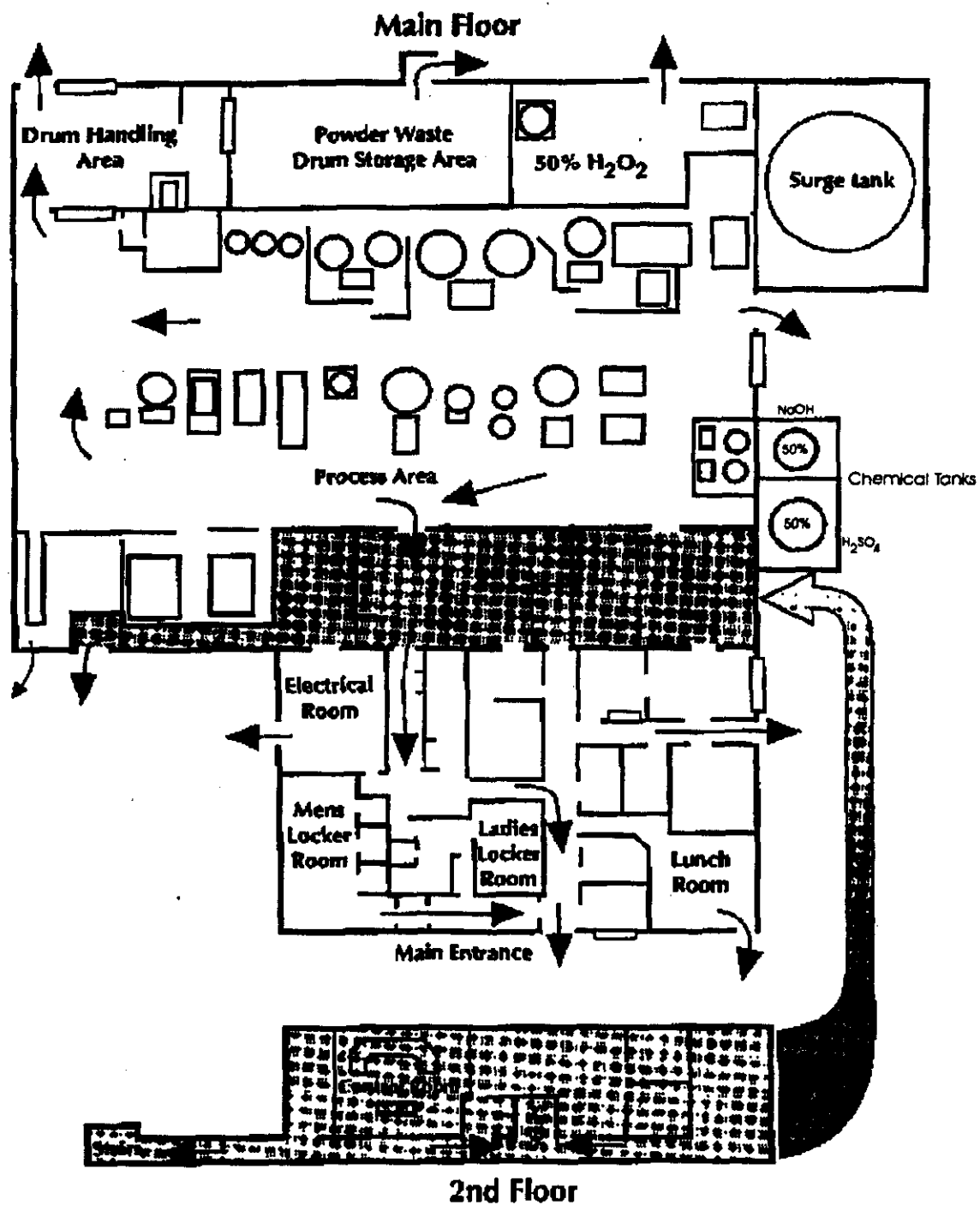
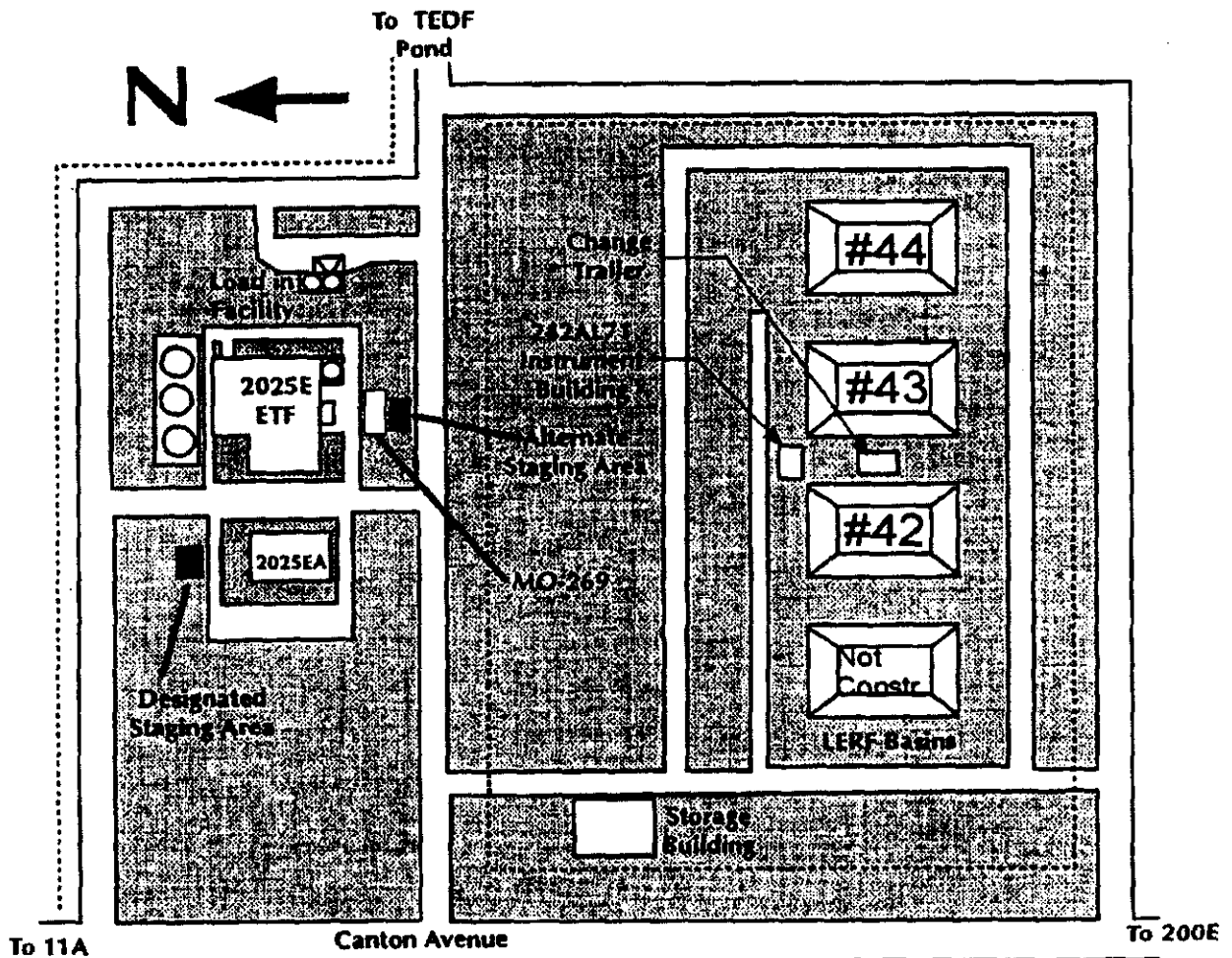


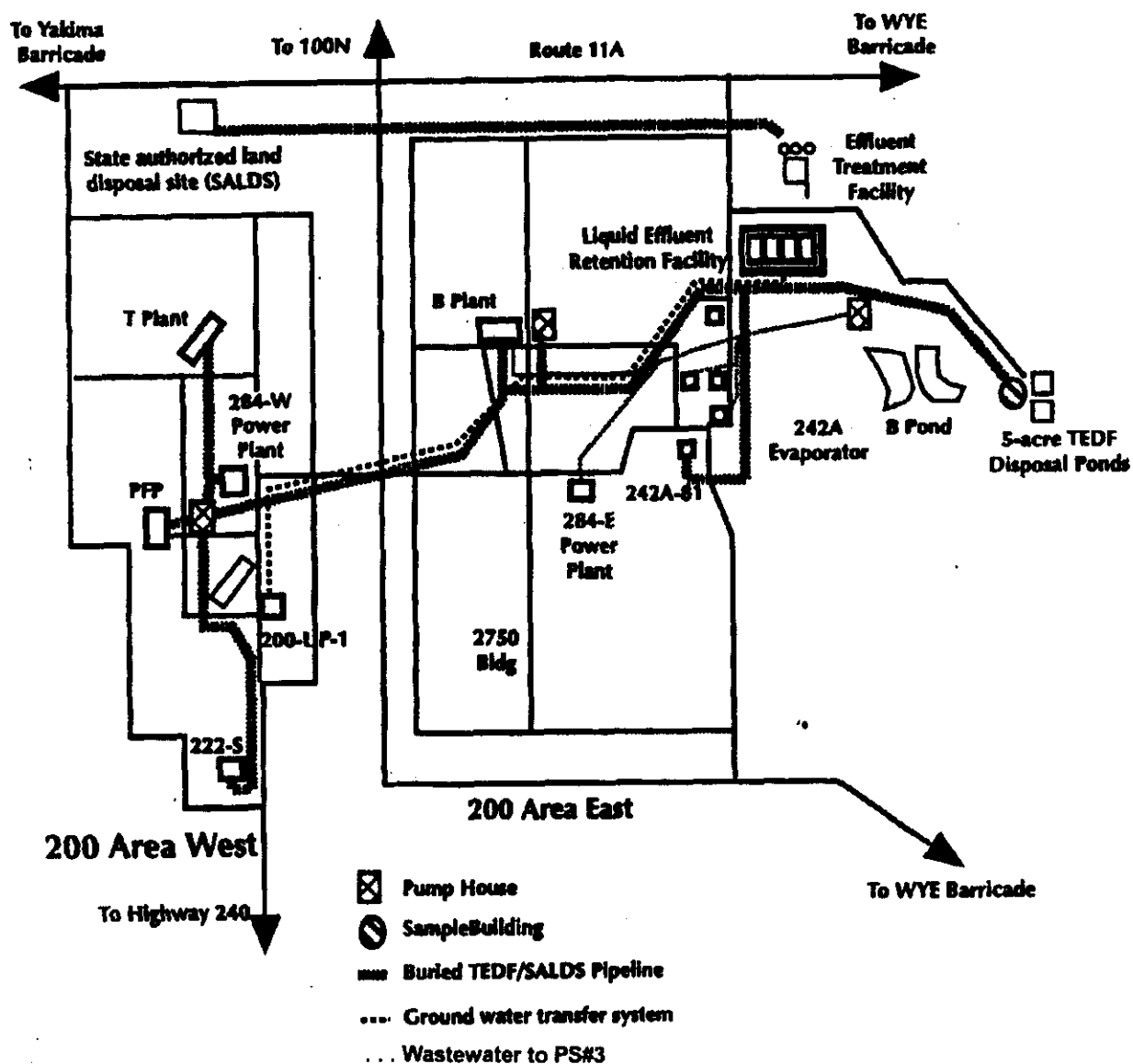
Figure 2. ETF/LERF Site Plan



■ Staging Area

ETF or LERF site evacuation routes will be determined by the Building Emergency Director dependent on event location and wind direction

Figure 3. 200 Area LWPf SALDS, TEDF, Ground Water Transfer System



2.0 PURPOSE

This plan describes both the facility hazards and the impacts of upset and/or emergency conditions. "Emergency" as used in this document includes events meeting the Washington Administrative Code (WAC) 173-303 definition of Emergency as well as U.S. Department of Energy (DOE) Order 232.1 categories of Unusual Occurrence and Emergency. These events include spills or releases, fires and explosions, transportation activities, movement of materials, packaging, storage of hazardous materials, and natural and security contingencies. When used in conjunction with DOE/RL-94-02, *Hanford Emergency Management Plan*, this plan meets the requirements for contingency planning as required by WAC 173-303. Sections 1.5, 3.1, 4.0 1st paragraph, 7.1, 7.2, 7.3, 8.1, 8.2, 8.3, 8.4, 9.0 (9.1-9.6), 11.0, 12.0, and 13.0 of the BEP are enforceable sections meeting RCRA contingency planning requirements. Enforceable sections cannot be changed without coordinating the change with the Hanford Facility RCRA Permit modification process.

3.0 FACILITY/BUILDING EMERGENCY RESPONSE ORGANIZATION

The LWPF is staffed 24 hours each day, and is prepared to respond to emergencies through designated personnel with specific primary, on-call and alternate responsibilities. The ETF/LERF Building Emergency Director (BED) directs the emergency response until the Incident Commander arrives at the event scene. The BED is on duty 24 hours each day. The on-duty Shift Operations Manager is the designated primary BED. There is a designated alternate BED on day shift available for directing emergency response if required. Other personnel required as part of the building emergency organization are also on duty with either primary or alternate responsibilities. The following paragraphs describe this organization and the duties of designated personnel.

3.1 Building Emergency Director

Emergency response is directed by the Building Emergency Director (BED) until the Incident Commander arrives. The incident command system and staff with supporting on-call personnel fulfill the responsibilities of the Emergency Coordinator as discussed in WAC 173-303.

During events, facility personnel perform response duties under the direction of the BED. The Incident Command Post (ICP) is managed by either the senior Hanford Fire Department member present on the scene or senior Hanford Patrol member present on the scene (security events only). These individuals are designated as the Incident Commander (IC) and as such have the authority to request and obtain any resources necessary for protecting people and the environment. The BED becomes a member of the ICP and functions under the direction of the IC. In this role the BED continues to manage and direct facility operations.

A listing of the primary and alternate BEDs by title, work location, and work telephone numbers is contained in Section 13 of this plan. The BED is on the premises or is available through an "on-call" list 24 hours a day. Emergency Preparedness maintains a listing of BED names and work and home telephone numbers at the Patrol Operations Center (POC) in accordance with *Hanford Facility RCRA Permit*, Dangerous Waste Portion, General Condition II.A.4.

3.2 Other Members

As a minimum, Facility Management appoints and ensures training is provided to individuals to perform as Personnel Accountability Aides and Staging Area Managers. The accountability aides facilitate the implementation of protective actions (evacuation or take cover) and the accountability of personnel after the protective actions have been implemented. Staging Area Managers coordinate/conduct activities at

the staging area. In addition, the BED may identify additional support personnel (Radiological Control, Maintenance, Engineering, Hazardous Material Coordinators, etc.) to be part of the Facility/Building Emergency Response Organization. Section 13.0 of this plan discusses the location of information regarding positions, names, and telephone numbers. Copies are distributed to appropriate facility locations and to the Hanford Site Emergency Preparedness organization.

4.0 IMPLEMENTATION OF THE PLAN

To meet the requirements of the WAC 173-303, this plan will be implemented when the BED has determined that a release, fire, or explosion which could threaten human health or the environment (RCRA Emergency) has occurred at the facility. The RCRA Emergency determination process is described in DOE/RL-94-02, Section 4.2.

The BED assesses each incident to determine the response necessary to protect personnel, the facility, and the environment. If emergency assistance from Hanford Patrol, Hanford Fire Department, or ambulance units is required, the Hanford Emergency Response Number (911) must be used to contact the POC and request the desired assistance. To request other resources or assistance from outside the facility, the POC business number is used (373-3800).

5.0 FACILITY HAZARDS

Facility hazards and potential targets are identified and evaluated in the hazards assessment required by DOE Orders for the ETF/LERF. The hazards assessment is not used in the Hanford Facility contingency planning program. The objective of this section of the emergency plan is to document all known hazards that pose significant risks to human health or to the environment and identify quantitative values for those significant risks.

Certain information in this plan pertains only to DOE Order considerations (e.g., discussions pertaining to hazards from hazardous materials and radioactive-only materials). Terms such as Emergency Response Protective Guidelines (ERPG), Alert Emergencies, Site Area Emergencies, and General Emergencies pertain only to DOE Order planning considerations. These hazards and terms are not part of the Hanford Facility contingency planning program. The only portion of this section that is part of the Hanford Facility contingency planning program are the chemical constituent hazards discussed in Section 5.3.

5.1 ETF Hazards

5.1.1 Hazardous Materials

Material Safety Data Sheets (MSDSs) are located in building 2025EA, rooms 101 and A1, and in the ETF Control Room.

Potentially hazardous materials at the ETF include chemicals added as part of the treatment process, chemicals added to prevent corrosion, and anti-foaming agents added to the evaporator. There are no explosives in the system, although some chemicals can react or decompose violently. Hazardous chemicals in the process liquid are discussed in Section 5.1.3.

Hazardous process chemicals identified in the hazards assessment are given in Table 1, including the associated American Industrial Hygiene Association ERPG values. DOE Order emergency planning ensures that appropriate protective actions are taken for the full range of events from a release of hazardous material that has the potential to exceed limits.

Table 1. ETF HAZARDOUS PROCESS CHEMICALS

Hazardous Chemical	ERPG Values		
	1	2	3
50% hydrogen peroxide	10 ppm	50 ppm	100 ppm
92% sulfuric acid	2 mg/m ³	10 mg/m ³	30 mg/m ³
50% sodium hydroxide	2 mg/m ³	40 mg/m ³	100 mg/m ³

ppm-parts per million; mg-milligram; m³-cubic meter

5.1.2 Industrial Hazards

The industrial hazards associated with the facility include electrical equipment, rotating equipment, confined spaces, compressed gas cylinders, and propane tanks. The industrial hazards associated with the facility do not pose a threat to the human health or the environment. Industrial hazards are addressed in the building health and safety plan and maintenance programs.

5.1.3 Radioactive/Dangerous/Mixed Waste

5.1.3.1 Solid Form

There are three types of solid mixed wastes at ETF:

- Secondary waste powder – A dry powder with a low radioactivity level that may contain ammonium, sodium, sulfates, silicon, nitrates, calcium, magnesium, and trace metals. The ETF Process Run Plan will document the characterization of the waste streams. The process drum capacity is 55 gallons. Locations include the thin film dryer room, drum handling area, and the process drum storage area. Maximum radiological source terms and hazardous materials for the secondary waste powder are below the levels requiring evaluation for emergency preparedness concerns.
- Indirect Waste – Materials that are used in the treatment process. These materials include spent resin beads, spent reverse osmosis membranes, spent high efficiency particulate air (HEPA) cartridges, carbon filter medium, and spent filter elements. Storage locations could include all staged maintenance areas or satellite accumulation areas.
- Dry active waste – Small quantities of waste from routine operations and maintenance activities (i.e., rags, sampling media, etc.). Locations include the process area, external tank area, staged maintenance areas, and satellite accumulation areas.

5.1.3.2 Liquid Form

The aqueous waste treated at ETF may contain low levels of radioactivity and/or dangerous chemical constituents. The radioactive/dangerous/mixed waste is evaluated in the hazards assessment as required by DOE Orders. Maximum radiological source term and dangerous waste materials are evaluated in the ETF Process Run Plan. The amount present must be below the levels requiring reevaluation for emergency preparedness concerns prior to treatment.

The influent aqueous waste to the ETF is treated in the primary treatment train to remove and/or destroy contaminants to allow discharge to the ground in accordance with the Washington State Waste Discharge Permit. Removed contaminants are concentrated in the secondary treatment train and are addressed in Section 5.1.3.1.

Emergency planning activities include implementing instructions that evaluate conditions and consequences associated with abnormal radiation levels, as well as release of waste water. For the purposes of field measurements, the site boundary is defined as 100 meters from the facility buildings.

5.1.3.3 Gaseous Form

Airborne effluent streams are produced through the following:

- Radiological control area Heating Ventilation Air Conditioning (HVAC) system - exhaust from radiologically controlled areas.
- Vessel offgas system - Vapors and gases from the various tanks and treatment systems.

The vessel offgas HEPA filters remove particulates from the air stream before discharge to the radiologically controlled area HVAC system. The combined air stream passes through another HEPA filter and is monitored for radiation. Analysis shows that potential radioactive release levels are less than the values requiring event classification.

5.1.4 Criticality

A criticality is not a credible hazard at ETF.

5.2 LERF Hazards

5.2.1 Hazardous Materials

No hazardous material is stored at LERF. Small quantities of hazardous material could be used in maintenance and sampling activities. Any release of these materials would not be classed as a WAC 173-303 or DOE emergency.

5.2.2 Industrial Hazards

The industrial hazards associated with LERF include electrical equipment, rotating equipment, confined spaces, compressed gas cylinders, and propane tanks. The industrial hazards associated with the facility do not pose a threat to the health and safety of the general public or environment. Industrial hazards are addressed in the building health and safety plan and maintenance programs.

5.2.3 Radioactive/Dangerous/Mixed Waste

5.2.3.1 Solid Form

Small quantities of low radioactivity mixed waste from routine operations and maintenance activities (i.e., rags, sampling media, etc.). Locations include sampling areas, staged maintenance areas, and satellite accumulation areas. Any release of these materials would not be classed as a WAC 173-303 or DOE emergency.

5.2.3.2 Liquid Form

The aqueous waste stored in the LERF basins may contain low levels radioactivity with dangerous chemical constituents and is evaluated in the hazards assessment as required by DOE Orders. Maximum radiological source terms for LERF are below the levels requiring evaluation for emergency preparedness concerns. The chemical constituent of concern, based on worst case scenarios for process condensate from the 242-A Evaporator, is ammonia. American Industrial Hygiene Association ERPG values are shown in Table 2.

Table 2. LERF WASTE CHEMICAL CONSTITUENTS OF CONCERN

Constituent	ERPG Values		
	1	2	3
Process liquid – Ammonia	25 ppm	200 ppm	1000 ppm

5.2.3.3 Gaseous Form

Airborne effluent streams produced from the waste water in the basins is vented through the basin vent system. Analysis shows that potential for gaseous release levels are less than the values requiring event classification.

5.2.4 Criticality

A criticality is not a credible hazard at LERF.

5.3 TEDF and Ground Water Transfer System Hazards

The hazards associated with the TEDF and the GTS are industrial hazards only. Industrial hazards to facility personnel are addressed in the building health and safety plan and maintenance programs.

5.3.1 Hazardous Materials

Only small amounts of sample preservative chemicals are stored at the TEDF. There are no hazardous materials associated with the TEDF or GTS that would pose a threat to human health or the environment. However, maintenance and sampling activities might require the use of small quantities of hazardous materials. Hazards associated with maintenance and sampling activities are addressed in the health and safety plan and maintenance programs.

5.3.2 Industrial Hazards

The industrial hazards associated with the TEDF include electrical equipment, rotating equipment, confined spaces, compressed gas cylinders, and propane tanks. A propane storage tank for the pump house #2 Standby Power Generator is the only hazard above common industrial hazards. Response to an event involving the propane tank would be as a result of fire or explosion. The industrial hazards associated with the TEDF or GTS do not pose a threat to human health or the environment.

5.3.3 Radioactive/Dangerous/Mixed Waste

The level of radioactive/dangerous materials in the influent to TEDF allows for disposal as a nondangerous waste. The total inventory of the GTS is based on the volume of the transfer line and the concentration of contaminants in the 200-UP-1 groundwater. The radioactive/dangerous material inventories associated with the aqueous waste in the TEDF or GTS are sufficiently low that there is no threat to human health or the environment.

5.3.4 Criticality

A criticality accident is not credible at the TEDF or GTS.

6.0 POTENTIAL EMERGENCY CONDITIONS

The objective of this section is to identify WAC 173-303 and DOE Order potential emergency conditions and to identify the appropriate DOE Order emergency classification level. Protective action responses

based on these classifications are discussed in Section 7.0. Technical justification for the values and limits identified in this section are provided in the hazards assessment required by DOE Orders for the ETF/LERF. The hazards assessment is not used in the Hanford Facility contingency planning program.

Potential emergency conditions fall into three basic categories: operational (process upsets, fires and explosions, loss of utilities, spills, and releases), natural phenomena (earthquakes and storms), and security contingencies (bomb threats, hostage situations). For operational emergencies, event frequency coupled with accident severity provide the criteria for emergency plan response.

Potential radioactive/dangerous/mixed waste release modes include fires, explosions, spills, or environmental releases. These events are evaluated based on the potential impact to operations and subsequent release of waste or hazardous materials. Potential consequences to human health or the environment are the ultimate criteria for event classification and protective response actions. Additionally, prolonged small releases are evaluated for their potential to impact human health or the environment.

6.1 Facility Operations Emergencies

Operations emergencies for each facility are discussed in the following section.

6.1.1 ETF Operations Emergencies

6.1.1.1 Loss of Utilities

Loss of utilities would interrupt the treatment processes but would not be classed as a WAC 173-303 or DOE Order defined emergency.

6.1.1.2 Major Process Disruption/Loss of Plant Control

Process disruption/loss of plant control would interrupt the treatment processes but would not be classed as a WAC 173-303 or DOE Order defined emergency.

6.1.1.3 Pressure Release

The ETF has low pressure compressed air and steam systems. Loss of the compressed air or steam system(s) could result in loss of plant control or a process disruption. Process disruption/loss of plant control would interrupt the treatment processes.

Compressed gas cylinders are used at the ETF. Failure of compressed gas bottles could cause flying debris hazards and are addressed as part of fire and/or explosion, Section 6.1.1.4

A process system pressure release is categorized as a condensate spray release. This is addressed as a radioactive/dangerous/mixed waste spill, Section 6.1.1.6.

6.1.1.4 Fire and/or Explosion

A fire/explosion could generate highly toxic and/or corrosive fumes. Flying debris might result from explosions and compressed gas cylinder failure. Process system disruption, loss of plant control, and breach of process system boundaries could result from the flying debris.

6.1.1.5 Hazardous Material Spill

Hazards associated with process chemical spills include potential exposure to corrosive, oxidizing, or toxic materials, as well as potential environmental damage by the release of these materials to the air, water, or soil column. The hazards assessment required by DOE Orders identifies sulfuric acid and

hydrogen peroxide spills as events that could pose significant risk or consequences to warrant emergency planning.

6.1.1.6 Dangerous/Mixed Waste Spill

The ETF inventories include large quantities of process liquid, secondary powder waste, indirect waste, and dry active waste. The hazards assessment has evaluated that there are no events that could pose significant risk or consequences to warrant emergency planning. ETF has the potential for minor exposures to radioactive material, corrosive, oxidizing or toxic materials, as well as localized environmental damage by their release to air, water, or soil column. Therefore, response for dangerous/mixed waste releases are included in the scope of emergency planning.

6.1.1.7 Transportation and/or Packaging Incidents

A transportation and/or packaging incident involving chemicals, dangerous/mixed waste, or samples could result in exposure to hazardous materials (corrosive, oxidizer, toxic) and/or low levels of radioactivity, as well as potential environmental damage by their release to the air, water, or soil column.

6.1.1.8 Radiological Material Release/Abnormal Radiation level

The ETF inventories include large quantities of process liquid, secondary powder waste, indirect waste, and dry active waste. Radioactive materials will accumulate in various treatment systems and in secondary waste powder. ETF has the potential for concentrating radioactive materials, therefore, response for abnormal radiation levels and radioactive material release are included in the scope of emergency planning.

6.1.1.9 Criticality

A criticality is not a credible accident at the ETF.

6.1.2 LERF Operations Emergencies

6.1.2.1 Loss of Utilities

Loss of utilities would interrupt the pumping and automatic sampling processes.

6.1.2.2 Major Process Disruption/Loss of Plant Control

Major process disruption/loss of plant control would interrupt the pumping and automatic sampling processes.

6.1.2.3 Pressure Release

There are no high pressure systems at LERF. A piping system breach is addressed as a radioactive/dangerous/mixed waste spill (Section 6.1.2.6).

6.1.2.4 Fire and/or Explosion

A fire/explosion could generate highly toxic and/or corrosive fumes.

6.1.2.5 Hazardous Material Spill

Process liquid releases are addressed in Section 6.1.2.6. Small quantities of hazardous material could be used in maintenance and sampling activities. A spill of these materials would not be classed as a WAC 173-303 or DOE emergency.

6.1.2.6 Dangerous/Mixed Waste Spill

The LERF inventories include large quantities of process liquid. The hazards at LERF could pose significant risks or consequences and warrant emergency planning. LERF has the potential for exposures to radioactive material, corrosive, oxidizing or toxic materials, as well as environmental damage by their release to air, water, or soil column. Therefore response for dangerous/mixed waste release are included in the scope of emergency planning.

6.1.2.7 Transportation and/or Packaging Incidents

A transportation and/or packaging incident involving hazardous chemicals, radioactive/dangerous/mixed waste, or samples could result in exposure to hazardous materials (corrosive, oxidizer, toxic) and/or low levels of radioactivity, as well as potential environmental damage by their release to the air, water, or soil column.

6.1.2.8 Radiological Material Release/Abnormal Radiation Level

Refer to Section 6.1.2.6.

6.1.2.9 Criticality

A criticality is not a credible accident at LERF.

6.1.3 TEDF and GTS Operations Emergencies**6.1.3.1 Loss of Utilities**

Loss of utilities would interrupt the pumping and automatic sampling processes but would not be classed as a WAC 173-303 or DOE emergency.

6.1.3.2 Major Process Disruption/Loss of Plant Control

Process disruption/loss of plant control could cause an inadvertent discharge of treated effluent or nontreated groundwater to a nonpermitted area. Discharge to an unauthorized area would not be classed as a WAC 173-303 or DOE emergency.

6.1.3.3 Pressure Release

There are no high pressure systems at the TEDF or GTS. A piping system breach is addressed in Section 6.1.3.6.

6.1.3.4 Fire and/or Explosion

A fire/explosion could generate highly toxic and/or corrosive fumes.

6.1.3.5 Hazardous Material Spill

No hazardous material is stored in the TEDF pump houses. Small quantities of hazardous material could be used in maintenance and sampling activities. This would not be classed as a WAC 173-303 or DOE emergency.

6.1.3.6 Dangerous/Mixed Waste Spill

Influent to TEDF is a nondangerous waste. TEDF and groundwater releases would not be classed as a WAC 173-303 or DOE emergency. LWPF surveillance serves as leak detection.

6.1.3.7 Transportation and/or Packaging Incidents

There are transportation and/or packaging activities at TEDF or GTS.

6.1.3.8 Radiological Material Release/Abnormal Radiation level

TEDF process liquid meets discharge limits. A groundwater release would not be classed as a WAC 173-303 or DOE emergency.

6.1.3.9 Criticality

A criticality is not a credible accident at TEDF or the GTS.

6.2 Natural Phenomena**6.2.1 Seismic Event**

Depending on the magnitude of the seismic event, severe structural damage could occur at ETF/LERF, resulting in serious injuries or fatalities and the release of hazardous or radioactive materials to the environment. Damaged electrical circuits and wiring could result in the initiation of fires.

6.2.2 Ashfall/Snow Fall Roof Overloading

Ash or snow accumulations can cause actual roof or other structural damage to buildings containing hazardous material or radioactive/dangerous/mixed waste. There should be ample warning of an approaching large ashfall to allow the facilities to be placed in a stable condition.

6.2.3 High Winds/Tornados

Hazards associated with high winds or tornado include loss of electrical power, damage caused by flying objects, or structural damage.

6.2.4 Flood

A flood is not a credible accident at ETF/LERF because the facility is not within the Columbia River flood plain.

6.2.5 Range Fire

In the event that a range fire threatens any ETF/LERF building containing hazardous material or radioactive/dangerous/mixed waste, emergency classification will be made per DOE-0223, *Emergency Plan Implementing Procedure*, Appendix 1-2.K.

6.2.6 Aircraft Crash

If an aircraft crash occurs into or near ETF/LERF, emergency classification will be made per DOE-0223, *Emergency Plan Implementing Procedure*, Appendix 1-2.K.

6.3 Security Contingencies**6.3.1 Bomb Threat/Explosive Device**

A bomb threat may be received by anyone who answers a telephone or receives mail. Bomb threats may pose a fire or explosion hazard. Fire or explosion from a bomb could lead to the release of hazardous

constituents or materials and exposure or bodily harm to personnel. If the device explodes, classification of the event will be performed as stated in Section 6.1.1.4, 6.1.2.4, or 6.1.3.4.

6.3.2 Hostage Situation/Armed Intruder

A hostage situation or the entry of an armed hostile intruder(s) at ETF/LERF could pose an emergency situation if there is the potential to adversely impact the facility.

6.3.3 Suspicious Object

The major effect on the facility due to recognizing a suspicious object is that the facility should be placed in a safe configuration, if time permits, and the facility evacuated.

7.0 INCIDENT RESPONSE

The initial response to any emergency is to immediately protect the health and safety of persons in the immediate area. Identification of released material is essential to determine appropriate protective actions. Containment, event notification, treatment, and disposal assessment are secondary responses.

The following sections describe the process for implementing basic protective actions as well as descriptions of response actions for the events listed in Section 6.0. DOE/RL-94-02, Section 1.3, provides concept of operations for emergency response on the Hanford Site.

Incident responses are coordinated from the ETF control room or a designated alternate location.

7.1 Protective Actions Responses

7.1.1 Evacuation

The objective of a facility evacuation order is to limit personnel exposure to hazardous materials or radioactive/dangerous/mixed waste by increasing the distance between personnel and the hazard. The scope of the evacuation includes evacuation of the facility because of an event at the facility as well as evacuation of the facility in response to a site evacuation order. Evacuation will be directed by the BED when conditions warrant and will apply to all personnel not actively involved in the event response or emergency plan-related activities.

The BED will initiate the evacuation by directing an announcement be made to evacuate along with the evacuation location over a public address system, facility radios, and, as conditions warrant, by activating the 200 Area site evacuation alarms by calling the POC using 911 or 373-3800 (if using a cellular phone). Personnel proceed to a predetermined staging area (shown in Figure 2), or other safe upwind location, as determined by the BED. The BED will determine the operating configuration of the facility and identify any additional protective actions to limit personnel exposure to the hazard.

Emergency organization personnel or assigned operations personnel will conduct a sweep of occupied buildings to ensure that all non-essential personnel and visitors have evacuated. For an immediate evacuation, accountability will be performed at the staging area. The BED will assign personnel as accountability aides and staging managers with the responsibility to ensure that evacuation actions are taken at all occupied buildings at the ETF or LERF complexes. All implementing actions executed by the aides/managers are directed by the emergency response procedures identified in Attachment A. When evacuation actions are complete, the aides/managers will provide a status report to the BED. The BED will provide status to the Incident Commander.

7.1.2 Take Cover

The objective of the take cover order is to limit personnel exposure to hazardous materials, or radioactive/dangerous/mixed waste when evacuation is inappropriate or not practical. Evacuation might not be practical or appropriate because of extreme weather conditions or the material release might limit the ability to safely evacuate personnel.

The BED will initiate the take cover by directing an announcement be made over the public address system, facility radios, and, as conditions warrant, by activating the 200 Area site take cover alarms by calling the POC using 911 or 373-3800 (if using a cellular phone). Actions to complete a facility take-cover will be directed by the emergency response procedure in Attachment A. Protective actions associated with operations include configuring, or shutting down, the ventilation systems. Determination of additional take cover response is based on plant operating configuration, weather conditions, amount and duration of release, and other conditions, as applicable to the event and associated hazard. As a minimum, personnel exposure to the hazard will be minimized. The BED will assign personnel as accountability aides with responsibility to ensure that take-cover actions are taken at all occupied buildings at the ETF complex. All implementing actions executed by the aides/managers are directed by the emergency response procedure in Attachment A. When take cover actions are complete the aides/manager will provide the BED with a status report.

7.2 Response to Operations Emergencies

If there is a potential for categorization of an Occurrence or classification into an Alert, Site Area or General Emergency, in the following facility operations emergency sections, reference shall be made to the site facility occurrence reporting procedure or the event recognition and classification procedure using the following statement, "Depending on the severity of the following events, the BED reviews the site wide procedures and facility-specific procedure (s) and, as required, categorizes or classifies the event. If necessary, the BED initiates area protective actions and site emergency response organization activation. The steps identified in the following description of actions do not have to be performed in sequence because of the unanticipated sequence of incident events."

7.2.1 Loss of Utilities

The hazards assessment has determined that this occurrence does not pose significant risk to human health or the environment. This event is not classified as a WAC 173-303 or DOE emergency.

7.2.2 Major Process Disruption/Loss of Plant Control

The hazards assessment has determined that this occurrence does not pose significant risk to human health or the environment. This event is not classified as a WAC 173-303 or DOE emergency.

7.2.3 Pressure Release

The hazards assessment has determined that a pressure release does not pose significant risk to human health or the environment. This event is not classified as a WAC 173-303 or DOE emergency. Hazardous material release and radioactive/dangerous/mixed waste releases are addressed in Section 7.2.5.

7.2.4 Fire and/or Explosion

On becoming aware of a fire and/or explosion, the discoverer notifies personnel (if any) in the immediate area and directs them to a safe location. The discoverer then activates the nearest fire alarm pull station, contacts 911 to request fire fighting assistance, and contacts the ETF control room to report the fire. As

soon as non-essential personnel are notified of a fire (verbally or by fire alarm activation), they immediately exit the facility to a safe upwind location, account for their personnel, and follow the instructions of responding personnel. If personnel are reported as missing, and might be within the facility, the Hanford Fire Department conducts a search.

The BED is notified and initiates activation of the event command post and resources.

Operations personnel initiate a plant shutdown with the method (controlled or emergency) depending on the location and severity of the fire and the location and type of hazards in the affected area. A controlled shutdown is performed unless it is unsafe to remain in the control room. An emergency shutdown is performed if the control room must be evacuated. The Shift Operations Manager interfaces with the Hanford Fire Department and provides the following:

- a. Location and health of personnel, including missing personnel and possible locations for fire fighters to search.
- b. Location and severity of fire.
- c. Known hazardous (radiological and nonradiological) conditions.
- d. Facility operating status.
- e. Utility systems status.
- f. Support by radiological control personnel (i.e., monitoring, surveys, sampling, decontamination).
- g. Facility layout, and facility known hazardous conditions, (i.e., electrical, thermal, flammable materials, pressurized cylinders, toxic gas, pressure systems, batteries, radiation areas, etc.).
- h. Support for fire fighter activities as required.

Once the fire is extinguished, the Shift Operations Manager/BED ensures administrative restrictions are implemented to protect the facility, the workers, and the environment. The Shift Operations Manager/BED makes notifications as required and assists with recovery actions.

An incident requiring evacuation of personnel or the summoning of emergency response units does not necessarily indicate that the contingency plan has been implemented.

A fire or explosion involving 92% sulfuric acid will be classified as a Site Emergency. Actions described in Section 7.2.5.2 will be performed for this event.

7.2.5 Hazardous Material, Radioactive/Dangerous/Mixed Waste Spills or Releases

The ETF and LERF have engineering controls to contain or minimize spills. These controls include, containment berms, dedicated spill control sumps, remote gauges and level indicators as well as spray shields on chemical pipe flanges. LWPF procedures provide alarm response and maintenance actions for leak detection equipment, surveillance of possible leak locations, and response actions for detected spills.

Spills can result from many sources including process leaks, container spills or leaks, damaged packages or shipments, or personnel error. Spills of mixed waste are complicated by the need to deal with the extra hazard induced by the presence of radioactive materials.

If a spill or release is discovered, the discoverer performs the following actions:

1. Notifies the ETF control room and evacuates to a safe area
2. Remains available for consultation with the BED, Hanford Fire Department, or other emergency response personnel.

The control room operator performs the following actions:

1. Uses the public address system to notify the facility occupants of the event
2. Notifies the BED/HFD and relays information received from the event scene
3. Places the facility in a safe condition
4. Remains available to support further notification and response activities

The BED performs or arranges for personnel to perform the following actions:

1. Coordinates response activity and establishes a command post at a safe location
2. Obtains all available information pertaining to the incident and determines if the spill or release warrants implementation of the contingency plan in accordance with Sections 4.0, 6.1.5, and 6.1.9
3. Determines need for assistance from outside agencies and arranges for their mobilization and response
4. Initiates the appropriate announcements, if building or area evacuations are necessary
5. Arranges for care of any injured persons
6. Requests activation of the affected area emergency sirens/crash alarm system if a threat to surrounding facilities
7. Provides for event notification
8. Maintains access control at the incident site by keeping unauthorized personnel and vehicles away from the area. Security personnel can be used to assist in site control if control of the boundary is difficult. In determining controlled access areas, considers environmental factors such as wind speed and direction
9. Arranges for proper remediation of the incident after evaluation
10. Remains available for HFD, Hanford Patrol, and other authorities on the scene and provide all required information
11. Enlists the assistance of alternate BED(s), if around-the-clock work is anticipated
12. Refers media inquiries to the Media Relations/Communications offices of the contractors or DOE-RL.
13. Ensures the use of proper protective equipment, remedial techniques (including ignition source control for flammable spills), and decontamination procedures by all involved personnel, if remediation is performed by ETF personnel
14. Remains at the command post to oversee activities and to provide information, if remediation is performed by the HFD Hazardous Materials Response Team or other response teams
15. Ensures proper containerization, packaging, and labeling of recovered spill materials and overpack containers
16. Ensures decontamination (or restocking) and restoration of emergency equipment used in the spill remediation before resuming operations
17. Provides required reports after the incident.

7.2.5.1 Damaged, Unacceptable Hazardous Material, Dangerous and/or Mixed Waste Shipments

When a damaged shipment of hazardous material or dangerous waste arrives at the ETF and the shipment is unacceptable for receipt, actions will be taken to rectify the problem. If required, actions described in Section 7.2.5 are taken.

7.2.6 Radiological Material Release

At a minimum, actions described in Section 7.2.5 are taken. Abnormal radiation actions also may be implemented if conditions are warranted.

7.2.7 Criticality

The hazards assessment has determined that a criticality is not credible for ETF or LERF.

7.3 Prevention of Recurrence or Spread of Fires, Explosions, or Releases

The BED, as part of the incident command system, takes the steps necessary to ensure that a secondary release, fire, or explosion does not occur. The BED will take measures, where applicable, to stop processes and operations, collect and contain released waste, and remove or isolate containers. The BED also monitors for leaks, pressure buildups, gas generation, or ruptures in valves, pipes, or other equipment, whenever this is appropriate.

7.4 Response to Natural Phenomena

Depending on the severity of the event, the BED reviews occurrence reporting procedure or the facility event recognition and classification procedure and, as required, categorizes or classifies the event. If necessary, the BED initiates area protective actions and site emergency response organization activation.

7.4.1 Seismic Event

The Hanford Site emergency response organization's primary role in a seismic event is coordinating the initial response to injuries, fires, and fire hazards, and acting to contain or control radioactive and/or hazardous material releases.

Individuals should remain calm and stay away from windows, steam lines, and hazardous material storage locations. Once the shaking has subsided, individuals evacuate carefully and assist personnel needing help. The locations of any trapped individuals are reported to the BED or are reported to 911 or 373-3800 (if using a cellular phone).

The BED takes whatever actions are necessary to minimize damage and personnel injuries, including:

- Coordinating searches for personnel and potential hazardous conditions (fires, spills, etc.),
- Conducting personnel accountability,
- Securing utilities and facility operations,
- Arranging for rescue efforts, and notifying 911 or 373-3800 (if using a cellular phone) for assistance,
- Determining if hazardous materials were released,
- Determining current local meteorological conditions,
- Warning other facilities and implementing protective actions if release of hazardous materials poses a danger,
- Providing personnel and resource assistance to other facilities.

7.4.2 Volcanic Eruption/Ashfall

When notified of an impending ashfall, the BED implements measures to minimize the impact of the ashfall, including the following:

- Installing filter media over building ventilation intakes,
- Installing filter media or protective coverings on outdoor equipment that could be adversely affected by the ash (diesel generators, equipment rooms etc.),
- Shutting down some or all operations and processes,
- Sealing secondary use exterior doors,

7.4.3 High Winds/Tornados

On notification of impending high winds, the BED takes steps necessary to secure all outside doors and windows, and secure all outdoor waste and hazardous material handling activities. All doors and windows are shut, and personnel are warned to use extreme caution when entering or exiting the building.

7.4.4 Flood

The hazard assessment determined that flooding at the LERF/ETF is not credible.

7.4.5 Range Fire

Responses to range fires are handled by preventive measures (i.e., keeping hazardous material and waste accumulation areas free of combustible materials such as weeds and brush). If a range fire breaches the facility boundary, the response is as described for a fire.

7.4.6 Aircraft Crash

Response to an aircraft crash would be appropriate for the condition created. For example: A fire due to explosion or electrical shorts would initiate the fire response actions specified in Section 7.2.4.

7.5 Security Contingencies

Depending on the severity of the event, the BED reviews occurrence reporting procedure or the facility event recognition and classification procedure and, as required, categorizes or classifies the event. If necessary, the BED initiates area protective actions and site emergency response organization activation.

7.5.1 Bomb Threat/Explosive Device**7.5.1.1 Telephone Threat**

Personnel receiving telephoned threats attempt to get as much information as possible from the caller. A form is available for personnel to keep by their telephone to use as a guide for getting useful information from the caller. On conclusion of the call, personnel notify the BED and Security.

The BED evacuates the facility and questions personnel at the staging area regarding any suspicious objects in the facility. When Security personnel arrive, their instructions are followed.

7.5.1.2 Written Threat

Receivers of written threats handle the letter as little as possible and notify the BED and Security. Depending on the content of the letter, the facility may or may not be evacuated. The letter is turned over to Security personnel and their instructions are followed.

7.5.2 Hostage Situation/Armed Intruder

The discoverer of a hostage situation/armed intruder reports the situation to the BED and to the POC via 911 or 373-3800 (if using a cellular phone), if possible. The BED, after conferring with Security personnel, may covertly evacuate areas of the facility not observable by the hostage taker(s)/intruder. No alarms will be sounded.

Security will determine the remaining response actions and will activate the Hostage Negotiating Team, if necessary.

7.5.3 Suspicious Object

The discoverer of an suspicious object reports it to the BED and to the POC via 911 or 373-3800 (if using a cellular phone), and, if possible, ensures that the object is not disturbed.

The BED orders evacuation of the facility and (based on the description provided by the discoverer) attempts to determine the identity or owner of the object. This may be done by questioning facility personnel at the staging area.

If the identity/ownership of the object cannot be determined, then Security assumes command of the incident. The canine unit is used to determine if the package contains explosives. If there is a positive indication of explosives or it cannot be assured that there are no explosives, then the Richland Police Department's Emergency Ordinance Disposal Team is dispatched to the facility to properly dispose of the device.

8.0 TERMINATION OF EVENT, INCIDENT RECOVERY, AND RESTART OF OPERATIONS

The DOE/RL-94-02, *Hanford Emergency Management Plan*, Section 9.0, describes these considerations. The extent by which these actions are employed is based upon the incident classification of each event. In addition, DOE/RL-94-02 contains considerations for the management of incompatible wastes, which may apply.

8.1 Termination of Event

For events where the Hanford Emergency Operations Center (Hanford EOC) is activated, the RL/ORP Emergency Manager has the authority to declare event termination. This decision is based on input from the BED, Incident Commander, and other emergency response organization members. For events where the Hanford EOC is not activated, the incident command system and staff declare event termination.

8.2 Incident Recovery and Restart of Operations

A recovery plan is developed when necessary. A recovery plan is needed following an event where further risk could be introduced to personnel, the facility, or the environment through recovery action and/or to maximize the preservation of evidence. Depending on the magnitude of the event and the effort required to recover from the event, recovery planning may involve personnel from DOE-RL and other contractors. If a recovery plan is required, it is reviewed by appropriate personnel and approved by

a Recovery Manager before restart. Restart of operations is performed in accordance with the approved plan.

If this plan is to be implemented for a RCRA Emergency (see Section 4.0), the Washington State Department of Ecology is notified before operations can resume. The DOE/RL-94-02, *Hanford Emergency Management Plan*, Section 5.1 discusses different reports to outside agencies. This notification is in addition to other required reports and includes information documenting the following conditions:

1. There are no incompatibility issues with the waste and released materials from the incident.
2. All the equipment has been cleaned, fit for its intended use, and placed back into service. The notification may be made via telephone conference. Additional information that Ecology requests regarding these restart conditions will be included in the required 15-day report identified in WAC 173-303-360(2)(k).

For emergencies not involving activation of the Hanford EOC, the BED ensures that conditions are restored to normal before operations are resumed. If the Hanford Site Emergency Response Organization was activated and the emergency phase is complete, a special recovery organization could be appointed at the discretion of DOE-RL to restore conditions to normal. This process is detailed in DOE-RL and contractor emergency procedures. The makeup of this organization depends on the extent of the damage and its effects. The onsite recovery organization is appointed by the appropriate contractor's management.

8.3 Incompatible Waste

After an event, the BED or the onsite recovery organization ensures that no waste that might be incompatible with the released material is treated, stored, and/or disposed of until cleanup is completed. Cleanup actions are taken by facility personnel or other assigned personnel. DOE/RL-94-02, Section 9.2.3, describes actions to be taken.

Waste from cleanup activities is designated and managed as newly generated waste. A field check for compatibility before storage is performed as necessary. Incompatible wastes are not placed in the same container. Containers of waste are placed in storage areas appropriate for their compatibility class.

If incompatibility of wastes was a factor in the incident, the BED or the onsite recovery organization ensures that the cause is corrected.

8.4 Post Emergency Equipment Maintenance and Decontamination

All equipment used during an incident is decontaminated (if practicable) or disposed of as spill debris. Decontaminated equipment is checked for proper operation before storage for subsequent use. Consumable and disposed materials are restocked. Fire extinguishers are recharged or replaced.

The BED ensures that all equipment is cleaned and fit for its intended use before operations are resumed. Depleted stocks of neutralizing and absorbing materials are replenished, self-contained breathing apparatus are cleaned and refilled, protective clothing is cleaned or disposed of and restocked, etc.

9.0 EMERGENCY EQUIPMENT

Hanford Site emergency resources and equipment are described and listed in DOE/RL-94-02, Appendix C.

9.1 Fixed Emergency Equipment

FIXED EMERGENCY EQUIPMENT		
TYPE	LOCATION	CAPABILITY
Safety shower/eye wash stations (ETF only)	1 - 2025E Rm 122 Decon Station 1 - 2025E South Wall of Process Area 1 - 2025E Rm 134 1 - Outside south 2025E near acid/caustic tanks 1 - Outside at Load-in station 1 - 2025E Rm 112 Laboratory	Assist in flushing chemicals/materials from the body and/or eyes and face of personnel.
Wet pipe sprinkler (ETF only)	Throughout the ETF except those areas protected by pre-active sprinklers.	Assist in the control of a fire.
Preactive sprinkler (ETF only)	Control room, communications room, electrical equipment room	Assist in the control of a fire. Maintained dry to prevent accidental damage to equipment.
Fire alarm pull boxes (ETF only)	All high traffic areas in operations administration and support areas, truck bay, and process area	Activate the local fire alarm
E-lights	Throughout ETF	1 hour temporary lighting

9.2 Portable Emergency Equipment

PORTABLE EMERGENCY EQUIPMENT		
TYPE	LOCATION	CAPABILITY
Fire extinguisher ABC type	Throughout ETF (Administrative/Support areas), LERF, and TEDF	Fire suppression for Class A, B, and C fires
Fire extinguisher BC type	Throughout ETF (process area and electrical room)	Fire suppression for Class B and C fires
Portable safety showers and Eye Wash Stations	As needed for special evolutions and maintenance	Assist in flushing chemicals/materials from the body and/or eyes and face of personnel.

9.3 Communications Equipment/Warning Systems

COMMUNICATIONS EQUIPMENT		
TYPE	LOCATION	CAPABILITY
Fire alarms (ETF only)	Corridors, locker rooms, process area, drum storage, and truck bay	Audible throughout ETF
Take cover/evacuation	Site Emergency Alarm System	Audible outside buildings and inside administrative buildings
Public address system (ETF Only)	Throughout the ETF	Audible throughout ETF
Portable radios	Operations and maintenance personnel	Communication to control room
Telephone	ETF – control room, 2025E, 2025EA offices, MO-269, 2025EC71. LERF – MO-727 and 242AL71 instrument building LERF Garage 242AL11 TEDF – 225E(pump house 1), 225W (pump house 2), 6653 (sample building), 6653A (pump house 3)	Internal and external communications. Allows notification off outside resources (POC, HFD, Hanford Patrol, etc.)
Crash alarms (ETF only)	Control room, 2025EA Rm 101	Audible in ETF control room
Area Radiation Monitors, Continuous Air Monitors	Evaporator skid and drum loadout area	Equipment only activated during potentially higher radiological campaigns

9.4 Personal Protective Equipment

PERSONAL PROTECTIVE EQUIPMENT		
Self contained breathing apparatus (SCBA)	4 – 2025E Rm 116	Breathable air for initial response to emergency, and recovery activities when required for radiological protection.
Acid suits	3 each included in the spill response cabinets in 2025E	Chemical protection for personnel during containment and isolation.
Respirators	2025E Rm 107A	Filtered air for recovery of known hazards.

9.5 Spill Control and Containment Supplies

SPILL KITS AND SPILL CONTROL EQUIPMENT		
TYPE	LOCATION	CAPABILITY
Spill bag	1 – TEDF 6653 Disposal Sampling Building. 1 – 90-day storage CONEX East of 2025E building	Support containment and cleanup of 6 gallons of acids or bases.
Drum spill kit	2 – 2025E building in process area 1 – MO-727 Change Trailer	Support containment and cleanup of 51 gallons of acids or bases.
Spill cart	2 – 2025E building in process area	Support containment and cleanup of 77 gallons of acids or bases.
Spill response cabinet	1 – 2025E Rm 122 1 – outside southeast side of 2025E	Support equipment for spill response.
Spill bag	1 – 2025E Rm 112 1 – 2025E upper level process area	Support containment and cleanup of 10 gallons of acids or bases.

9.6 Incident Command Post

For emergencies not requiring evacuation, the BED and support personnel will assemble in the ETF control room or other location as identified by the BED.

10.0 COORDINATION AGREEMENTS

DOE-RL has established a number of coordination agreements, or memoranda of understanding (MOU) with various agencies to ensure proper response resource availability for incidents involving the Hanford Site. A description of the agreements is contained in DOE/RL-94-02, Section 3, Table 3-1.

11.0 REQUIRED REPORTS

Post incident, written reports are required for certain incidents on the Hanford Site. The reports are described in DOE/RL-94-02, Section 5.1.

12.0 PLAN LOCATION

Copies of this plan are maintained at the following locations:

- ETF control room
- 242-A Evaporator control room
- Operations Managers office (Building 2025EA, room 101)
- 200 LWPF regulatory file

WASTE MANAGEMENT PROJECT**Document: HNF-IP-0263-ETF****BUILDING EMERGENCY PLAN
FOR ETF/LERF****Revision: 6****Page: 27 of 28****Effective Date: September 15, 2000****13.0 FACILITY/BUILDING EMERGENCY RESPONSE ORGANIZATION**

TITLE	WORK LOCATION	WORK PHONE
Shift Operation Manager (SOM)	2025E Building – ETF control room or 242-A Evaporator control room	373-9000 373-2737
Operations Manager	2025EA/101	372-3142

Names and home telephone numbers of the BEDs and alternates are available from the POC (373-3800) in accordance with Hanford Facility RCRA Permit, Dangerous Waste Portion, General Condition II.A.4.

14.0 REFERENCES

DOE-0223, *Emergency Plan Implementing Procedure*

DOE-232.1, *Occurrence Reporting and Processing of Operations Information*, U.S Department of Energy, Washington D.C.

DOE/RL-94-02, *Hanford Emergency Management Plan*.

DOE-151.1, *Comprehensive Emergency Management System*

WAC 173-303, *Dangerous Waste Regulations, Washington Administrative Code*, Washington State Department of Ecology, Olympia, Washington.

29 CFR 1910.120, *Hazardous Waste Operations and Emergency Response*

NIOSH, *Pocket Guide to Chemical Hazards*, National Institute of Occupational Safety and Health, U.S. Department of Health and Human Resources, Public Health Service, Centers for Disease Control, Washington, D.C.

Hanford Facility RCRA Permit, Dangerous Waste Portion, Washington State Department of Ecology, Olympia, Washington, as amended.

ATTACHMENT A**Listing of Procedures and Documents****Site-Wide Procedures**

DOE-0223, *Emergency Plan Implementing Procedures:*

- RLEP-1.1, *Hanford Incident Command System and Event Recognition and Classification*, Appendix 1-2.K
- RLEP-3.4, *Emergency Termination, Reentry, and Recovery*

Facility-Specific Emergency Response Procedures and Guides

EP-85B-001 Safety Shutdown
EP-85B-002 Minor Spill
EP-85B-003 Major Chemical Spill
EP-85B-004 Abnormal Radiation Levels
EP-85B-005 Fire/Explosion
EP-85B-006 Loss of AC Electrical Power
EP-85B-007 Take Cover
EP-85B-008 Evacuation
EP-85B-011 MCS Failure Safety Shutdown

Hanford Facility RCRA Permit Modifications
Part III, Chapter 5 and Attachment 35
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Chapter 7.0

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7.0 CONTINGENCY PLAN [G]

The WAC 173-303 requirements for a contingency plan are satisfied in the following documents:
Portions of the *Hanford Emergency Management Plan* [Attachment 4 of the HF RCRA Permit (DW Portion)] and portions of the *Building Emergency Plan for Liquid Effluent Retention Facility and 200 Area Effluent Treatment Facility* (Appendix 7A).

The unit-specific building emergency plan also serves to satisfy a broad range of other requirements [e.g., Occupational Safety and Health Administration standards (29 CFR 1910), *Toxic Substance Control Act of 1976* (40 CFR 761) and U.S. Department of Energy Orders]. Therefore, revisions made to portions of this contingency plan document that are not governed by the requirements of WAC 173-303 will not be considered as a modification subject to WAC 173-303-830 or Hanford Facility RCRA Permit (DW Portion) Condition I.C.3.

Table 7-1 identifies which portions of the building emergency plan are written to meet WAC 173-303 contingency plan requirements. In addition to the building emergency plan portions identified in Table 7-1, Section 12.0 of the building emergency plan is written to meet WAC 173-303 requirements identifying where copies of the *Hanford Emergency Management Plan* and the building emergency plan are maintained on the Hanford Facility. Therefore, revisions to Section 12.0 of the building emergency plan and the portions identified in Table 7-1 are considered a modification subject to WAC 173-303-830 or Hanford Facility RCRA Permit (DW Portion) Condition I.C.3.

Table 7-1. Hanford Facility Documents Containing Contingency Plan Requirements of WAC 173-303-350(3).

Requirement	<i>Hanford Emergency Management Plan</i> DOE/RL-94-02 Attachment 4 of the HF RCRA Permit (DW Portion)	Building Emergency Plan ¹ (HNF-IP-0263-242)
-350(3)(a) - A description of the actions, which facility personnel must take to comply with this section and WAC 173-303-360.	X ² Section 1.3.4	X ² Sections 7.1, 7.2 through 7.2.5, and 7.3 ³ Sections 4.0 (first paragraph), 8.2, 8.3, 8.4, 11.0
-350(3)(b) - A description of the actions which shall be taken in the event that a dangerous waste shipment, which is damaged or otherwise presents a hazard to the public health and the environment, arrives at the facility, and is not acceptable to the owner or operator, but cannot be transported pursuant to the requirements of WAC 173-303-370(5), Manifest system, reasons for not accepting dangerous waste shipments.	X ² Section 1.3.4	X ^{2,4} Section 7.2.5.1
-350(3)(c) - A description of the arrangements agreed to by local police departments, fire departments, hospitals, contractors, and state and local emergency response teams to coordinate emergency services as required in WAC 173-303-340(4).	X Sections 3.2.3, 3.3.1, 3.3.2, 3.4, 3.4.1.1, 3.4.1.2, 3.4.1.3, 3.7, and Table 3-1	
-350(3)(d) - A current list of names, addresses, and phone numbers (office and home) of all persons qualified to act as the emergency coordinator required under WAC 173-303-360(1). Where more than one person is listed, one must be named as primary emergency coordinator, and others must be listed in the order in which they will assume responsibility as alternates. For new facilities only, this list may be provided to the department at the time of facility certification (as required by WAC 173-303-810 (14)(a)(I)), rather than as part of the permit application.		X ⁵ Section 3.1, 13.0
-350(3)(e) - A list of all emergency equipment at the facility (such as fire extinguishing systems, spill control equipment, communications and alarm systems, and decontamination equipment), where this equipment is required. This list must be kept up to date. In addition, the plan must include the location and a physical description of each item on the list, and a brief outline of its capabilities.	X Hanford Fire Department: Appendix C	X Section 9.0
-350(3)(f) - An evacuation plan for facility personnel where there is a possibility that evacuation could be necessary. This plan must describe the signal(s) to be used to begin evacuation, evacuation routes, and alternate evacuation routes.	X ⁶ Figure 7-3 and Table 5-1	X ⁷ Section 1.5

1 An "X" indicates requirement applies.

2 ¹ Portions of the *Hanford Emergency Management Plan* not enforceable through Appendix A of that document are not made enforceable by reference in the building emergency plan.

3

²The *Hanford Emergency Management Plan* contains descriptions of actions relating to the Hanford Site Emergency Preparedness System. No additional description of actions is required if at the site level. If other credible scenarios exist or if emergency procedures at the unit are different, the description of actions contained in the building emergency plan will be used during an event by a building emergency director.

³Sections 7.1, 7.2 through 7.2.5, and 7.3 of the building emergency plan are those sections subject to the Class 2 "Changes in emergency procedures (i.e., spill or release response procedures)" described in WAC 173-303-830 Appendix I Section B.6.a.

⁴This requirement only applies to TSD units, which receive shipment of dangerous or mixed waste defined as off-site shipments in accordance with WAC 173-303.

⁵Emergency Coordinator names and home telephone numbers are maintained separate from any contingency plan document, on file in accordance with Hanford Facility RCRA Permit, DW Portion, General Condition II.A.4. and is updated, at a minimum, monthly.

⁶The Hanford Facility (sitewide) signals are provided in this document. No unit/building signal information is required unless unique devices are used at the unit/building.

⁷An evacuation route for the TSD unit must be provided. Evacuation routes for occupied buildings surrounding the TSD unit are provided through information boards posted within buildings.

APPENDIX 7A

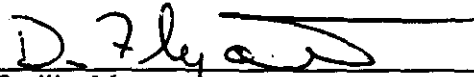
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BUILDING EMERGENCY PLAN FOR 242-A EVAPORATOR

This plan covers the following buildings and structures:

242-A Building, 242-AB Building, 242-A-81 Water Service Building,
207-A Retention Basins.


Approved:


Facility Management

9/12/00
Date


Environmental Compliance Officer

9/8/00
Date


Emergency Preparedness

9-8-00
Date


Hanford Fire Department

9-13-00
Date

This document will be reviewed annually and updated if necessary by Facility Management unless Hanford Facility RCRA Permit coordination requirements provides otherwise. The document will be approved by Facility Management and approved by the Manager of Emergency Preparedness (or delegate) and the Hanford Fire Department.

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1.0 GENERAL INFORMATION

The 242-A Evaporator, which is part of the 200 Area Liquid Waste Processing Facilities (LWPF), is located on the Hanford Site, a 560-square-mile U.S. Department of Energy (DOE) site in southeastern Washington State. The 242-A Evaporator is located in the southeast portion of the 200 East Area near the center of the Hanford Site. The Hanford Site Emergency Preparedness Program is based upon the incident command system, which allows a graded approach for response to emergency events. This plan contains a description of facility specific emergency planning and response. It is used in conjunction with DOE/RL-94-02, *Hanford Emergency Management Plan*. Response to events is performed using facility specific and/or site-level emergency procedures.

1.1 Facility Name

U.S. Department of Energy Hanford Site,
200 Area Liquid Waste Processing Facility,
242-A Evaporator.

1.2 Facility Location

Benton County, Washington; within the 200 East Area.
Buildings/facilities covered by this plan are:

- 242-A Building
- 242-AB Building
- 242-A-81 Water Service Building
- 207-A Retention Basins

1.3 Owner

U.S. Department of Energy
Richland Operations Office
825 Jadwin Avenue
Richland, Washington 99352

Facility Manager

Fluor Hanford, Inc.
P. O. Box 1000
Richland, Washington 99352

1.4 Description of the Facility and Operations

The 242-A Building is a five-story, concrete structure consisting of a main process area (i.e., pump room, load-out room, evaporator room, condenser room), support system area (i.e., aqueous makeup room, heating ventilation and air conditioning (HVAC) room, etc.), and the adjacent office area (i.e., lunch room, laboratories, offices, etc.). The main process and support system areas are designed and constructed to withstand a 0.25 g horizontal acceleration seismic event, and a 100-mile-per-hour, high wind/tornado.

The 242-AB Building was constructed to house the upgraded 242-A Evaporator monitoring and control system. This building adjoins the 242-A Building and includes the control room (room 18) and electrical room (room 19).

The 207-A Retention Basins are located east of the 242-A Building, and north of the AP Tank Farm. The Water Service Building (242-A-81) is located directly south of the 242-A Building.

The 242-A Evaporator is connected to Double-Shell Tank (DST) system tanks and valve pits through underground piping that is used for transferring feed and slurry solutions and miscellaneous drainage.

There is a satellite accumulation area located south of the 242-A Building.

1.5 Building Evacuation Routing

Figure 1 shows 242-A Evaporator evacuation routes. Figure 2 shows 242-A Evaporator staging areas.

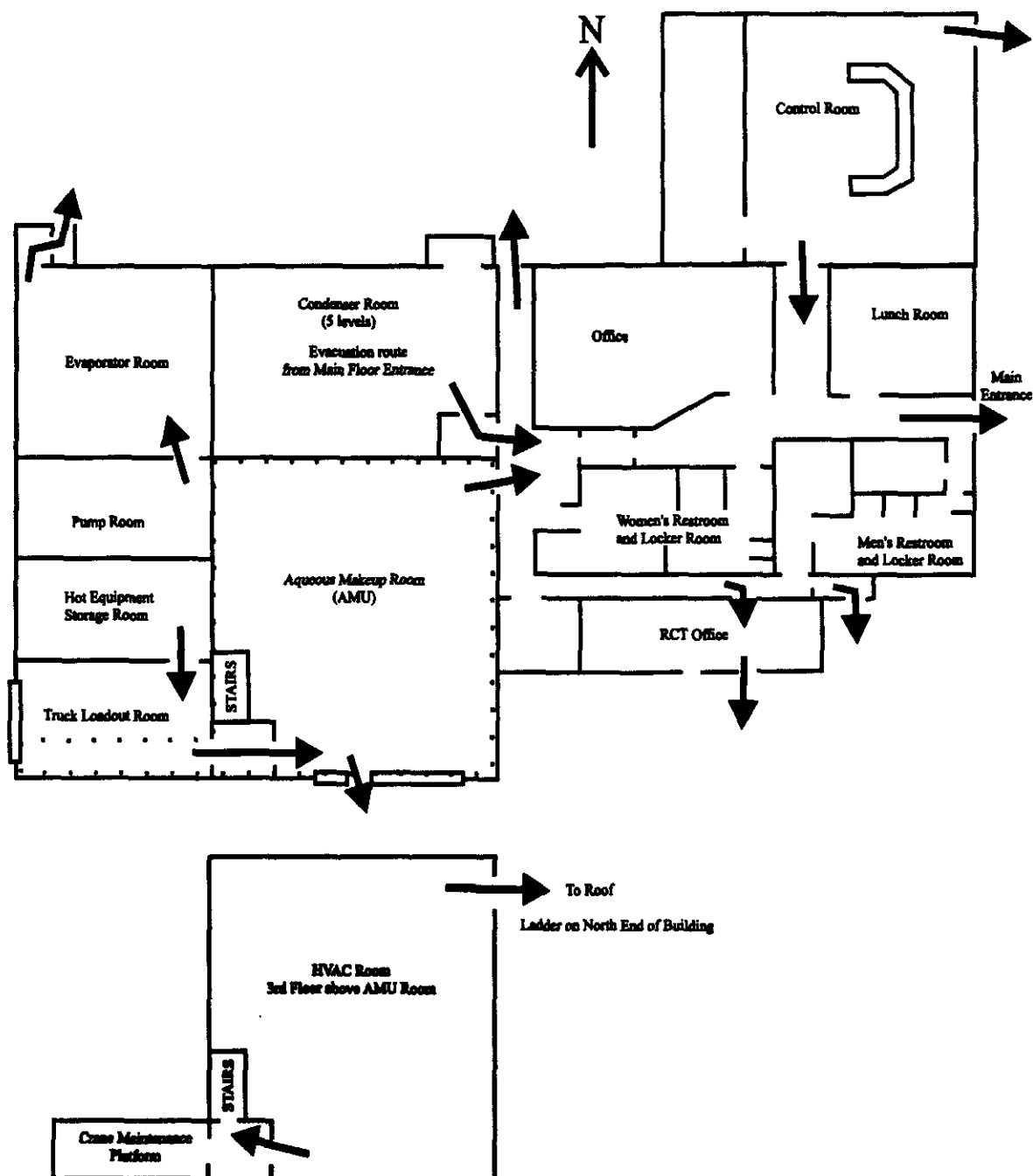
2.0 PURPOSE

This plan describes both the facility hazards and the impacts of upset and/or emergency conditions. "Emergency" as used in this document includes events meeting the Washington Administrative Code (WAC) 173-303 definition of Emergency as well as some DOE-232.1, *Occurrence Reporting and Processing of Operations Information*, categories of Unusual Occurrence and Emergency. These events include spills or releases, fires and explosions, transportation activities, movement of materials, packaging, storage of hazardous materials, and natural and security contingencies. When used in conjunction with DOE/RL-94-02, *Hanford Emergency Management Plan*, this plan meets the requirements for contingency planning as required by WAC 173-303.

3.0 FACILITY/BUILDING EMERGENCY RESPONSE ORGANIZATION

The 242A LWPF is staffed 24 hours each day, and is prepared to respond to emergencies through designated personnel with specific primary, on-call and alternate responsibilities. The 242-A Building Emergency Director (BED) directs the emergency response until the Incident Commander arrives at the event scene. The BED is on duty 24 hours each day. The on-duty Shift Operations Manager is the designated primary BED. There is a designated alternate BED on day shift available for directing emergency response if required. Other personnel required as part of the building emergency organization are also on duty with either primary or alternate responsibilities. The following paragraphs describe this organization and the duties of designated personnel.

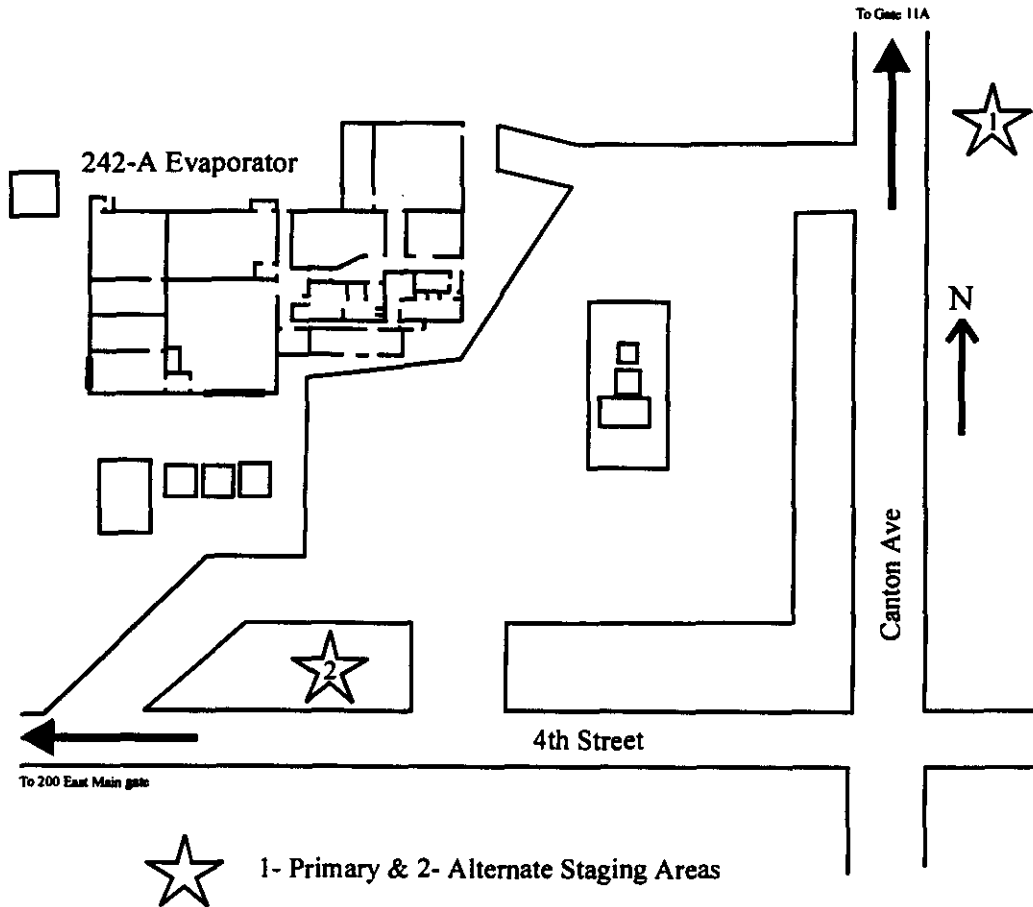
Figure 1. 242-A Evaporator Evacuation Routes



RCT: radiation control technologist

HVAC: heating, ventilation, and air conditioning

Figure 2. 242-A Evaporator Staging Areas



3.1 Building Emergency Director

Emergency response is directed by the Building Emergency Director (BED) until the Incident Commander arrives. The incident command system and staff with supporting on-call personnel fulfill the responsibilities of the Emergency Coordinator as discussed in WAC 173-303-360.

During events, facility personnel perform response duties under the direction of the BED. The Incident Command Post (ICP) is managed by either the senior Hanford Fire Department member present on the scene or senior Hanford Patrol member present on the scene (security events only). These individuals are designated as the Incident Commander (IC) and as such have the authority to request and obtain any resources necessary for protecting people and the environment. The BED becomes a member of the ICP and functions under the direction of the IC. In this role the BED continues to manage and direct facility operations.

A listing of the primary and alternate BEDs by title, work location, and work telephone numbers is contained in Section 13 of this plan. The BED is on the premises or is available through an "on-call" list 24 hours a day. Names and home telephone numbers of the BEDs are available from the Patrol Operations Center (POC) in accordance with *Hanford Facility RCRA Permit*, Dangerous Waste Portion, General Condition II.A.4.

3.2 Other Members

As a minimum, Facility Management appoints and ensures training is provided to individuals to perform as Personnel Accountability Aides and Staging Area Managers. The accountability aides are responsible for facilitating the implementation of protective actions (evacuation or take cover) and the accountability of personnel after the protective actions have been implemented. Staging Area Managers coordinate/conduct activities at the staging area. Staging Area Managers and Personnel Accountability Aids are trained annually and are required to participate in two drills per year. In addition, the BED may identify additional support personnel (Radiological Control, Maintenance, Engineering, Hazardous Material Coordinators, etc.) to be part of the Facility/Building Emergency Response Organization. Section 13.0 of this plan discusses the location of information regarding positions, names, and telephone numbers. Copies are distributed to appropriate facility locations and to the Hanford Site Emergency Preparedness organization.

4.0 IMPLEMENTATION OF THE PLAN

To meet the requirements of WAC 173-303, this plan will be implemented when the BED has determined that a release, fire, or explosion involving dangerous waste or dangerous waste constituents that could threaten human health or the environment (RCRA Emergency) has occurred at the facility. The RCRA Emergency determination process is described in DOE/RL-94-02, Section 4.2.

The BED assesses each incident to determine the response necessary to protect personnel, the facility, and the environment. If emergency assistance from Hanford Patrol, Hanford Fire Department, or ambulance units is required, the Hanford Emergency Response Number (911) must be used to contact the POC and request the desired assistance. To request other resources or assistance from outside the facility, the POC business number is used (373-3800).

5.0 FACILITY HAZARDS

This section describes hazards that pose significant risks to human health or the environment and identify quantitative values for those risks.

5.1 Hazardous Materials

Potentially hazardous materials at the 242-A Evaporator are used for normal maintenance and support functions. These could include acids, caustics, oils, diesel fuel and solvents. Diesel fuel also presents a flammability hazard. A significant release of materials would be classed as a WAC 173-303 or DOE Emergency.

Material Safety Data Sheets (MSDSs) are at the following locations:

- 2025EA Building:
 - Room 101
 - Room 104
- 2025E Building
 - Maintenance Shop, Room 103
 - Control Room
- 242-A Evaporator Control Room.

5.2 Industrial Hazards

Industrial hazards associated with the 242-A Evaporator include electrical equipment, pressurized equipment, high temperature equipment, rotating equipment, confined spaces, and compressed gas cylinders. These industrial hazards do not pose a threat to the health and safety of the general public or the environment. Industrial hazards are addressed in the building health and safety plan and maintenance programs.

5.3 Dangerous/Mixed Waste Hazards

5.3.1 Solid Form

Dangerous/mixed waste is generated at the 242-A Evaporator during sampling, decontamination, and maintenance activities. This waste is accumulated in a designated accumulation area south of the 242-A Building and transported to a 90-day accumulation area when required.

5.3.2 Liquid Form

Highly radioactive mixed waste solution is processed at the 242-A Evaporator and contained in the vapor-liquid separator, C-A-1, and ancillary equipment. Low radioactive, mixed waste solution is contained in the condensate collection tank, C-100, and ancillary equipment. Although the mixed waste solution contains chemicals that are hazardous (primarily ammonia and sodium hydroxide), the bounding consequence for spills or releases of this waste are based on its radiological components. Major radioactive isotopes and potential concentrations in the waste are shown in Table 1.

Table 1. Major Contributors to the 242-A Evaporator Waste Bounding Source Term

Isotope	Bq/L	Ci/L
Sr-90	8.14E+09	2.20E-01 5.30E-02
Ru-106	1.96E+09	1.50E+00
Cs-137	5.55E+10	1.60E-04
Pu-239	5.92E+06	1.50E-02
Pu-241	5.55E+08	1.00E-03
Am-241	3.70E+07	

The total volume of the vapor-liquid separator and recirculation loop (85,000 to 95,000 liters) is used to determine the potential radiological hazard. Sr-90 and Cs-137, along with their daughter products (Y-90 and Ba-137m), are the primary radiological hazards. Ru-106, Pu-239, Pu-241, and Am-241 also are significant contributors.

5.3.3 Gaseous Form

A waste blending error in the DST system potentially could generate large amounts of ammonia gas from the 242-A Evaporator vent system during processing.

5.4 Radioactive Materials

Radioactive material in solid form consists of waste materials, which have not contacted mixed waste solutions. Radioactive waste materials removed from radiation areas are packaged and transported to an approved radioactive waste storage facility.

Radioactive materials in liquid form are mixed wastes and are described in Section 5.3.2.

Radioactive materials in gaseous form are emitted from the vessel vent and building exhaust ventilation systems. These systems have HEPA filters to remove radioactive particulate, reducing emissions to acceptable discharge levels. Failure of HEPA filters could result in a loss of confinement as described in Section 6.1.8.

5.5 Criticality

A criticality is not a credible accident at the 242-A Evaporator.

6.0 POTENTIAL EMERGENCY CONDITIONS

Potential emergency conditions, under both WAC 173-303 and DOE guidance, may include one of three basic categories: operations (process upsets, fires and explosions, loss of utilities, spills, and releases), natural phenomena (earthquakes and storms), and security contingencies (bomb threats, hostage situations, etc.). The following are conditions that may lead to an emergency situation (WAC or DOE defined) at the 242A Evaporator and require the implementation of this plan.

Potential radioactive/dangerous/mixed waste release modes include fires, explosions, spills, or releases. These events are evaluated based on the potential impact to operations and subsequent release of waste materials. Potential consequences to human health or the environment are the ultimate criteria for event classification and protective response actions. Additionally, prolonged small releases are evaluated for their potential to impact human health or the environment.

6.1 Operations Emergencies

The conditions for operations emergencies are present only when mixed waste is present in the vapor-liquid separator, C-A-1, recirculation loop, and ancillary equipment.

6.1.1 Loss of Utilities

6.1.1.1 Loss of Electrical Power

A loss of electrical power could lead to a loss of compressed air, causing the vapor-liquid separator, C-A-1, drain valves to open and suddenly dump the contents to DST system tank 241-AW-102. A potential over pressurization and subsequent radiological release could occur from that tank. Mitigating actions for a radiological release from the DST system are taken per the tank farms emergency

procedures. A loss of electrical power would interrupt processing but would not produce an emergency event at the 242-A Evaporator.

6.1.1.2 Loss of Compressed Air

A loss of compressed air would cause the vapor-liquid separator, C-A-1, drain valve to open and suddenly dump the contents to DST system tank 241-AW-102. A potential over pressurization and subsequent radiological release could occur from that tank. Mitigating actions for a radiological release from the DST system are taken per the tank farms emergency procedures.

A loss of compressed air would interrupt processing but would not produce an emergency event at the 242-A Evaporator.

6.1.1.3 Loss of Raw Water

Raw water can be used as seal water for the mechanical seals on P-B-1 recirculation pump and P-B-2 slurry pump when the normal supply of process condensate is not available. If raw water is supplied to the seals, and loss of raw water occurs, failure of mechanical seals could occur, causing a spray release of mixed waste into the facility. The spray release scenario is discussed in Section 6.1.8. Interlocks are provided to stop the pumps on low seal water flow.

Raw water supplies cooling water to the EC-1, EC-2, and EC-3 condensers. Loss of raw water during facility operation will cause high temperatures in TK-C-100, which will result in a major process upset.

Raw water supplies cooling to the air compressors, with sanitary water available as a backup. If loss of raw water occurs, and backup cooling by sanitary water is not initiated within 15 to 20 minutes, the air compressors could overheat, causing a loss of compressed air. A loss of compressed air is discussed in Section 6.1.1.2.

6.1.1.4 Loss of Sanitary Water

If sanitary water is supplying cooling to the air compressors with raw water unavailable, the air compressors could overheat causing a loss of compressed air. A loss of compressed air is discussed in section 6.1.1.2.

6.1.1.5 Loss of K1 or Vessel Ventilation System

The K1 ventilation system maintains contaminated areas of the 242-A Building at a negative pressure (with respect to atmospheric) to prevent contamination spread to uncontaminated areas. The ventilation system includes two stages of high efficiency particulate air (HEPA) filters, two exhaust fans, and stack sampling and monitoring equipment. Both fans are electrically powered, however the backup fan can be powered by a diesel powered standby generator. The fans are interlocked so that if primary electrical power is lost, the backup fan automatically starts once the generator is on line. The K1 ventilation system is interlocked to shut down the primary fan and prevent the secondary fan from starting if high radioactive particulate level is detected in the exhaust stream.

The vessel ventilation system maintains the condenser vent system and the C-100 tank under vacuum to prevent contamination spread from the processing equipment to the rooms. The vessel vent system includes a demister, prefilter, heater, two HEPA filters in series, an exhaust fan, and stack sampling and monitoring equipment. The vessel ventilation monitoring system alarms in the control room if high radiation is detected.

The K1 and vessel ventilation systems are required for 242-A Evaporator processing. A loss of either ventilation system would require the 242-A Evaporator to be shut down but would not result in an

emergency condition. A ventilation system shutdown due to a radiological material release is discussed in section 6.1.8.1. A loss of confinement is discussed in section 6.1.8.3.

6.1.1.6 Loss of Steam

A loss of steam would interrupt the processing but would not produce an emergency event. Emergency planning is not required.

6.1.2 Major Process Disruption/Loss of Plant Control

A major process disruption/loss of plant control can be caused by failure of the Monitor and Control System (MCS) computer. A loss of MCS could cause the vapor-liquid separator, C-A-1, drain valve to open and suddenly dump the contents to DST system tank 241-AW-102. A potential over pressurization and subsequent radiological release could occur from that tank. Mitigating actions for a radiological release from the DST system are taken per tank farms emergency procedures.

6.1.3 Pressure Release

Consequences of a pressure release of mixed waste during processing are radiological in nature and are discussed in Section 6.1.8.

6.1.4 Fire and/or Explosion

A fire/explosion could generate highly toxic and/or corrosive fumes. Flying debris could result from explosions or compressed gas cylinder failure. Process system disruption, loss of plant control, and breach of process system boundaries could result from the flying debris.

If mixed waste is present in the vapor-liquid separator, C-A-1, process recirculation loop, and ancillary equipment, and a fire occurs in the control room, aqueous makeup room, HVAC room, condenser room, pump room, or evaporator room lasting longer than 30 minutes and requiring fire department actions for suppression, emergency classification should be made per criteria stated in DOE-0223, *Emergency Plan Implementing Procedure*, Appendix 1-2.M.

If an explosion is confirmed to have occurred at the 242-A Evaporator and the explosion threatens areas containing hazardous chemicals and/or radioactive material, or if the explosion breaches the external 242-A Building walls when the vapor-liquid separator contains solution, emergency classifications are per DOE-0223, *Emergency Plan Implementing Procedure*, Appendix 1-2.M.

6.1.5 Hazardous Material Spill or Release

A waste blending error in the DST system potentially could generate large amounts of ammonia gas from the 242-A Evaporator vent system during processing. Ammonia stack releases of more than 5 grams per second (40 pounds per hour and ammonia stack releases of more than 38 grams per second (300 pounds per hour) meet emergency criteria stated in DOE-0223, *Emergency Plan Implementing Procedure*, Appendix 1-2.M.

6.1.6 Radioactive/Mixed Waste Spill

The hazards consequences for mixed waste releases are radiological. Radiological releases are discussed in Section 6.1.8.

6.1.7 Transportation and/or Packaging Incidents

A transportation and/or packaging incident involving hazardous chemicals or samples could result in exposure to hazardous and radioactive materials. Potential environmental damage by their release could also occur.

6.1.8 Radiological Material Release

6.1.8.1 Ventilation System Release

If a mixed waste release causes K1 ventilation or vessel ventilation system high radiation, it is necessary to quickly assess whether any radioactive material was released. If there is a release of radioactive material, emergency classification will be made per criteria stated in DOE-0223, *Emergency Plan Implementing Procedure*, Appendix 1-2.M.

6.1.8.2 Release of Mixed Waste into Facility

A catastrophic release of mixed waste into the Pump or Evaporator rooms would necessitate an emergency classification per DOE-0223, *Emergency Plan Implementing Procedure*, Appendix 1-2.M.

6.1.8.3 Loss of Confinement

If a loss of confinement in the 242-A Building occurs, along with a loss of negative pressure in radiation areas, emergency classification will be made per DOE-0223, *Emergency Plan Implementing Procedure*, Appendix 1-2.M.

6.1.9 Criticality

A criticality is not a credible accident at the 242-A Evaporator.

6.2 Natural Phenomena

Natural phenomena are discussed in the following sections.

6.2.1 Seismic Event

Depending on the magnitude of the seismic event, severe structural damage could occur at the 242-A Evaporator, resulting in serious injuries or fatalities and the release of hazardous or radioactive materials to the environment. Damaged electrical circuits and wiring could result in the initiation of fires.

Any seismic event that is felt by personnel, with some minor facility damage, and disturbance of tall objects at the 242-A Evaporator locations that house hazardous chemicals and/or radioactive materials requires classification per DOE-0223, *Emergency Plan Implementing Procedure*, Appendix 1-2.M. An emergency classification upgrade could occur based on facility conditions and/or actual hazardous material or radioactive/dangerous/mixed waste releases determined by personnel assessing quake damage.

6.2.2 Ashfall/Snow Fall Roof Overloading

Ash or snow accumulation causing actual roof or other structural damage to buildings containing hazardous material or radioactive/dangerous/mixed waste requires classification per DOE-0223, *Emergency Plan Implementing Procedure*, Appendix 1-2.M. There should be ample warning of an approaching large ashfall to allow the facilities to be placed in a stable condition.

6.2.3 High Winds/Tornados

When sustained wind speeds in excess of 40 meters per second (90 miles per hour) are observed and cause degradation of the facility safety equipment/confinement barriers, emergency classification is made per DOE-0223, *Emergency Plan Implementing Procedure*, Appendix 1-2.M. An emergency classification upgrade could occur based on actual facility damage or release of hazardous materials, radioactive/dangerous/mixed waste.

6.2.4 Flood

A flood is not a credible accident at 242-A Evaporator because the facility is not within the Columbia River flood plain.

6.2.5 Range Fire

In the event that a range fire threatens any 242-A Evaporator building containing hazardous material or radioactive/dangerous/mixed waste, emergency classification is made per DOE-0223, *Emergency Plan Implementing Procedure*, Appendix 1-2.M.

6.2.6 Aircraft Crash

If an aircraft crash occurs into or near the 242-A Evaporator, emergency classification is made per DOE-0223, *Emergency Plan Implementing Procedure*, Appendix 1-2.M. An emergency classification upgrade could occur based on actual facility damage or release of hazardous material or radioactive/dangerous/mixed waste.

6.3 Security Contingencies**6.3.1 Bomb Threat/Explosive Device**

Bomb threats may pose a fire or explosion hazard. Fire or explosion from a bomb could lead to the release of hazardous constituents or materials and exposure and bodily harm to personnel. Emergency classification will be made per DOE-0223, *Emergency Plan Implementing Procedure*, Appendix 1-2.M. If an explosive device detonates, classification of the event will be performed as stated in Section 6.1.4.

6.3.2 Hostage Situation/Armed Intruder

A hostage situation or the entry of an armed hostile intruder(s) at the 242-A Evaporator can pose an emergency if either of these conditions has the potential to adversely affect facility operations. An emergency classification upgrade could occur based on actual facility damage or release of hazardous material or radioactive/dangerous/mixed waste.

6.3.3 Suspicious Object

The major effect on the facility due to recognizing a suspicious object is that the facility should be placed in a safe configuration, if time permits, and the facility evacuated.

7.0 INCIDENT RESPONSE

The initial response to any emergency is to immediately protect the health and safety of persons in the immediate area. Identification of released material is essential to determine appropriate protective actions. Containment, event notifications, treatment, and disposal assessment are secondary responses.

The following sections describe the process for implementing basic protective actions as well as descriptions of response actions for the events listed in Section 6.0 of this plan. DOE/RL-94-02, Section 1.3, provides concept of operations for emergency response on the Hanford Site.

Incident responses are coordinated from the 242-A Evaporator control room or a designated alternate location.

7.1 Protective Actions Responses

7.1.1 Evacuation

The objective of a facility evacuation order is to limit personnel exposure to hazardous materials or radioactive/dangerous/mixed waste by increasing the distance between personnel and the hazard. The scope of the evacuation includes evacuation of the facility due to an event at the facility as well as evacuation of the facility in response to a site evacuation order. Evacuation is directed by the BED when conditions warrant and applies to all personnel not actively involved in the event response or in emergency plan-related activities.

The BED initiates the evacuation by directing an announcement be made to evacuate along with the evacuation location over the public address system and facility radios, activate the evacuation siren (steady siren) for three minutes, and, as conditions warrant, by activating the 200 Area evacuation alarms by calling the POC using 911 or 373-3800 (if using a cellular phone). Personnel proceed to a predetermined staging area (shown in Figure 1), or other safe upwind location, as determined by the BED. The BED determines the operating configuration of the facility and identifies any additional protective actions to limit personnel exposure to the hazard.

Emergency organization personnel or assigned operations personnel conduct a sweep of occupied buildings to ensure that all non-essential personnel and visitors have evacuated. For an immediate evacuation, accountability is performed at the staging area. The BED assigns personnel as accountability aides and staging area managers with the responsibility to ensure that evacuation actions are taken at the 242-A and 242-AB Buildings. All implementing actions executed by the aides/managers are directed by the emergency response procedures identified in Attachment A. When evacuation actions are complete, the aides/managers provide a status report to the BED. The BED provides status to the Incident Commander.

7.1.2 Take Cover

The objective of the take cover order is to limit personnel exposure to hazardous or radioactive/dangerous/mixed waste when evacuation is inappropriate or not practical. Evacuation might not be practical or appropriate because of extreme weather conditions or the material release might limit the ability to safely evacuate personnel.

The BED initiates the take cover by directing an announcement be made over the public address system and facility radios, by activating the take cover siren (wavering siren) for three minutes, and, as conditions warrant, by activating the 200 Area take cover alarms by calling the POC using 911 or 373-3800 (if using a cellular phone). Actions to complete a facility take cover order are directed by the emergency response procedure in Attachment A. Protective actions associated with operations include configuring, or shutting down, the ventilation systems. Determination of additional take cover actions is based on operating configuration, weather conditions, amount and duration of release, and other conditions, as applicable to the event and associated hazard. As a minimum, personnel exposure to the hazard is minimized. The BED assigns personnel as accountability aides with responsibility to ensure that take cover actions are taken at all occupied buildings at the 242-A Evaporator. All implementing actions executed by the aides/managers are directed by the emergency response procedures in Attachment A. When take cover actions are complete the aides/managers provide the BED with a status report.

7.2 Response to Facility Operations Emergencies

Depending on the severity of the following events, the BED reviews the site-wide procedures and facility-specific procedure (s) and, as required, categorizes and classifies the event. If necessary, the

BED initiates area protective actions and site emergency response organization activation. The steps identified in the following description of actions do not have to be performed in sequence because of the unanticipated sequence of incident events.

7.2.1 Loss of Utilities

7.2.1.1 Loss of Electrical Power

Should there be a loss of electrical power to the 242-A Evaporator, all personnel are evacuated from radiation areas due to the potential loss of radiation monitoring equipment (i.e., continuous air monitors, area radiation monitors). In addition, all non-essential personnel leave the facility. Access into the radiation and adjacent areas is restricted to response personnel who are properly clothed and equipped. Radiation monitoring by radiological control personnel is established, and facility operations are properly shutdown to a safe configuration.

If back-up power is not automatically placed in service, the diesel powered standby generator is manually placed in service. Operation of the Backup K1 Ventilation system exhaust fan is checked and, if not operating, actions are taken to start the fan (K1-5-2), to restart the normal fan, or to secure the confinement area. If an exhaust fan is operating, verification is made that the exhaust stack radiation monitor is returned to service.

If the evaporator is in operation mode and a dump of C-A-1 vessel does occur, AW Tank Farm personnel are notified of impending pressurization of DST system tank 241-AW-102. The 200 East Area Tank Farms Shift Manager is notified of the event, as is the 242-A Evaporator plant management.

All implementing actions executed by the aides/managers are directed by the emergency response procedures in Attachment A.

7.2.1.2 Loss of Compressed Air

Upon loss of the compressed air at the 242-A Evaporator, restoration of the air supply system is immediately attempted. If this fails, non-essential personnel are notified to exit the facility. Automatic dumping of the C-A-1 vessel is stopped; the vessel could dump later when air pressure that holds the drain valve fails open. If a dump of C-A-1 vessel does occur, AW Tank Farm personnel are notified of impending pressurization of DST system tank 241-AW-102.

Plant conditions are monitored as components fail and shutdown interlocks activate, and the facility is placed into a safe shutdown condition. The K1 ventilation system is monitored for potential failure due to loss of damper control (caused by loss of air supply), and plant management is notified of the facility condition. A backup air compressor is placed in service as soon as possible.

7.2.1.3 Loss of Raw Water

On loss of the raw water system, 242-A Evaporator personnel are immediately notified, and non-essential personnel are directed to leave the facility. Essential personnel are directed to the 242-A Evaporator control room for support as required. The P-B-1 and P-B-2 pumps are shutdown to prevent damage to the mechanical seals. If seal water is being supplied by the process condensate system, pump operation may continue through a controlled shutdown. The compressors are placed on sanitary cooling water. If air compressor failure occurs due to loss of cooling water, the automatic dumping of the C-A-1 vessel is terminated; the vessel could dump later when air pressure that holds the drain valve fails open. If a dump of C-A-1 vessel does occur, AW Tank Farm personnel are notified of impending over-pressurization of DST system tank 241-AW-102. The 200 East Area Tank Farms Shift Manager is notified of the facility condition.

Facility operations are properly shutdown, and plant management is notified of the facility condition.

7.2.1.4 Loss of Sanitary Water

On loss of the sanitary water, 242-A Evaporator Operations personnel perform the following:

1. Notify facility personnel
2. Ensure all air compressors are placed on raw cooling water
3. Ensure all chemical operations are terminated until safety showers and eye wash stations are operational (i.e., return of sanitary water system).

7.2.1.5 Loss of K1 Ventilation System

On loss of the K1 ventilation system, restoration of the primary backup K1 ventilation exhaust fan is immediately attempted. If the K1 ventilation system cannot be restored immediately, personnel are notified to exit contaminated areas, and non-essential personnel are directed to exit the facility. Essential personnel report to the 242-A control room for support as required. Having the K2 ventilation system operating ensures continued adequate contamination control. The K2 ventilation system maintains positive pressure in non-contaminated areas. If the primary and backup K1 ventilation system exhaust fans are not running, actions are taken to shutdown the facility and restrict access to contamination areas. Plant management is notified of facility conditions.

7.2.2 Major Process Disruption/Loss of Plant Control

Upon loss of the MCS, the 242-A Evaporator Shift Operations Manager is notified while an attempt is made to return the MCS to service. If a dump of C-A-1 vessel does occur, AW Tank Farm personnel are notified of impending over-pressurization of DST system tank 241-AW-102, and all personnel in the AW Tank Farm evacuate to the change trailer. Non-essential personnel exit the 242-A Evaporator facility.

The system condition is assessed, and corrective actions are implemented. Operations are placed on recirculation by securing the slurry pump and waste feed to the plant. Facility shutdown is accomplished by performing manual, localized actions such as system isolation, equipment shutdown, etc.

7.2.3 Pressure Release

If mixed waste release occurs, perform actions identified in Section 7.2.5.

7.2.4 Fire and/or Explosion

On becoming aware of a fire and/or explosion, the discoverer notifies personnel (if any) in the immediate area and directs them to a safe location. The discoverer then activates the nearest fire alarm pull station, contacts 911 to request fire fighting assistance, and contacts the 242-A Evaporator control room to report the fire. As soon as non-essential personnel are notified of a fire (verbally or by fire alarm activation), they immediately exit the facility to a safe upwind location, account for their personnel, and follow the instructions of responding personnel. If personnel are reported as missing, and might be within the facility, the Hanford Fire Department conducts a search.

The BED is notified and initiates activation of the incident command post and resources.

Operations personnel initiate a plant shutdown with the method (controlled or emergency) depending on the location and severity of the fire and the location and type of hazards in the affected area. A controlled shutdown is performed unless it is unsafe to remain in the control room. An emergency shutdown is performed if the control room must be evacuated. The Building Emergency Director interfaces with the Hanford Fire Department and provides the following:

- a. Location and health of personnel, including missing personnel and possible locations for fire fighters to search.
- b. Location and severity of fire.
- c. Known hazardous (radiological and nonradiological) conditions.
- d. Facility operating status.
- e. Utility systems status.
- f. Support by radiological control personnel (i.e., monitoring, surveys, sampling, decontamination).
- g. Facility layout, and facility known hazardous conditions, (i.e., electrical, thermal, flammable materials, pressurized cylinders, toxic gas, pressure systems, batteries, radiation areas, etc.).
- h. Support for fire fighter activities as required.

Once the fire is extinguished, the Shift Operations Manager/BED ensures administrative restrictions are implemented to protect the facility, the workers, and the environment. The Shift Operations Manager/BED makes notifications as required and assists with recovery actions.

7.2.5 Hazardous Material, Dangerous and/or Mixed Waste Spills or Releases

The 242A Evaporator has engineering controls to contain or minimize spills. These controls include containment berms, dedicated spill control sumps, remote gauges and level indicators as well as spray shields on chemical pipe flanges. The 242A Evaporator procedures provide alarm response and maintenance actions for leak detection equipment, surveillance of possible leak locations, and response actions for detected spills.

Spills can result from many sources including process leaks, container spills or leaks, damaged packages or shipments, or personnel error. Spills of mixed waste are complicated by the need to deal with the extra hazard induced by the presence of radioactive materials.

If a spill or release is discovered, the discoverer performs the following actions:

1. Notifies the 242-A Evaporator control room and evacuates to a safe area
2. Remains available for consultation with the BED, Hanford Fire Department, or other emergency response personnel.

The control room operator performs the following actions:

1. Uses the public address system to notify the facility occupants of the event
2. Notifies the BED/HFD and relays information received from the event scene
3. Places the facility in a safe condition
4. Remains available to support further notification and response activities

The BED performs or arranges for personnel to perform the following actions:

1. Coordinates response activity and establishes a command post at a safe location
2. Obtains all available information pertaining to the incident and determines if the spill or release warrants implementation of the contingency plan in accordance with Sections 4.0, 6.1.5, and 6.1.8. In the case of ammonia releases, described in Section 6.1.5, this information includes monitoring stack ammonia concentrations.
3. Determines need for assistance from outside agencies and arranges for their mobilization and response

4. Initiates the appropriate announcements, if building or area evacuations are necessary
5. Arranges for care of any injured persons
6. Requests activation of the affected area emergency sirens/crash alarm system if a threat to surrounding facilities
7. Provides for event notification
8. Maintains access control at the incident site by keeping unauthorized personnel and vehicles away from the area. Security personnel can be used to assist in site control if control of the boundary is difficult. In determining controlled access areas, considers environmental factors such as wind speed and direction
9. Arranges for proper remediation of the incident after evaluation
10. Remains available for HFD, Hanford Patrol, and other authorities on the scene and provide all required information
11. Enlists the assistance of alternate BED(s), if around-the-clock work is anticipated
12. Ensures the use of proper protective equipment, remedial techniques (including ignition source control for flammable spills), and decontamination procedures by all involved personnel, if remediation is performed by 242-A Evaporator personnel
13. Remains at the incident command post to oversee activities and to provide information, if remediation is performed by the HFD Hazardous Materials Response Team or other response teams
14. Ensures proper containerization, packaging, and labeling of recovered spill materials and overpack containers
15. Ensures decontamination (or restocking) and restoration of emergency equipment used in the spill remediation before resuming operations
16. Provides required reports after the incident.

7.2.5.1 Damaged and/or Unacceptable Shipments

The 242-A Evaporator does not receive dangerous or mixed waste shipments.

7.2.6 Radiological Material Release

7.2.6.1 K1 Ventilation or Vessel Ventilation System Release

If high radiation alarms or HEPA filter failure indicate a radiological material release from the K1 ventilation or vessel ventilation system, the ventilation system is immediately shutdown. A near contact radiation survey is performed on a ventilation system sample filter to determine extent of the radiological material released. The actions described in Section 7.2.5 are then performed.

7.2.6.2 Release of Mixed Waste into Facility

If a catastrophic dumping of mixed waste from vapor-liquid separator C-A-1 occurs, the facility is immediately shutdown. AW Tank Farm personnel are notified of impending over-pressurization of DST system tank 241-AW-102. The 200 East Area Tank Farms Shift Manager is notified of facility condition. The actions in Section 7.2.5 are then performed.

If a catastrophic dumping of the vapor-liquid separator causes high radiation alarm on the K1 ventilation system, the actions described in Section 7.2.6.1 are performed.

7.2.6.3 Loss of Confinement

If a loss of confinement occurs, the proper operation and lineup of the K1/K2 ventilation systems are verified. The actions described in Section 7.2.5 are performed. If the high radiation alarm on the K1 ventilation system is actuated, the actions described in Section 7.2.6.1 are performed. If the loss of confinement results in a radiological release outside the facility, the actions described in Section 7.1.2 are performed.

7.2.7 Criticality

A criticality is not a credible accident at the 242-A Evaporator.

7.3 Prevention of Recurrence or Spread of Fires, Explosions, or Releases

The BED, in coordination with emergency response organizations, takes the steps necessary to ensure that a secondary release, fire, or explosion does not occur. Shutting off power, closing off ventilation systems, etc, isolates the area of the initial incident. The affected area containment is inspected for leaks, cracks, or other damage and for toxic vapor generation. Released material and waste remaining inside of containment structures are removed as soon as possible, and residual waste material is contained and isolated using dikes and adsorbents. Outside areas where residual released materials remain are covered or otherwise stabilized to prevent migration or spread from wind or precipitation run-off.

New structures, systems, or equipment are installed as required based on engineering evaluations to enable better management of hazardous materials or dangerous waste. Adjacent operations in affected areas are reactivated only after residual waste materials are removed to levels acceptable to control contamination spread.

7.4 Response to Natural Phenomena

Depending on the severity of the event, the BED reviews the facility event recognition and classification procedure and, if required, classifies the event and initiates area protective actions and site emergency response organization activation. If other emergency conditions arise as a result of a natural phenomena event, response is appropriate for the condition created. For example: A fire due to lightning initiates the fire response actions and a spill of hazardous material due to an earthquake initiates spill response actions.

7.4.1 Seismic Event

The Hanford Site emergency response organization's primary role in a seismic event is coordinating the initial response to injuries, fires, and fire hazards, and acting to contain or control radioactive and/or hazardous material releases.

Individuals should remain calm and stay away from windows, steam lines, and hazardous material storage locations. Once the shaking has subsided, individuals evacuate carefully and assist personnel needing help. The locations of any trapped individuals are reported to the BED or are reported to 911 or 373-3800.

The BED takes whatever actions are necessary to minimize damage and personnel injuries, including:

- Coordinating searches for personnel and potential hazardous conditions (fires, spills, etc.),
- Conducting personnel accountability,
- Securing utilities and facility operations,

- Arranging for rescue efforts, and notifying 911 or 373-3800 for assistance,
- Determining if hazardous materials were released,
- Determining current local meteorological conditions,
- Warning other facilities and implementing protective actions if release of hazardous materials poses a danger,
- Providing personnel and resource assistance to other facilities.

7.4.2 Volcanic Eruption/Ashfall

When notified of an impending ashfall, the BED implements measures to minimize the impact of the ashfall, including the following:

- Installing filter media over building ventilation intakes,
- Installing filter media or protective coverings on outdoor equipment that could be adversely affected by the ash (diesel generators, equipment rooms etc.),
- Shutting down some or all operations and processes,
- Sealing secondary use exterior doors,

7.4.3 High Winds/Tornados

On notification of impending high winds, the BED takes steps necessary to secure all outside doors and windows, and secure all outdoor waste and hazardous material handling activities. All doors and windows are shut, and personnel are warned to use extreme caution when entering or exiting the building.

7.4.4 Flood

Flooding of the 242-A Evaporator is not credible.

7.4.5 Range Fire

Responses to range fires are handled by preventive measures (i.e., keeping hazardous material and waste accumulation areas free of combustible materials such as weeds and brush). If a range fire breaches the facility boundary, the response is as described for a fire.

7.4.6 Aircraft Crash

Response to an aircraft crash is appropriate for the condition created. For example, a fire due to explosion or electrical shorts, initiates the fire response actions specified in Section 7.2.4.

7.5 Security Contingencies

Depending on the severity of the event, the BED reviews the facility event recognition and classification procedure and, if required, classifies the event and initiates area protective actions and site emergency response organization activation.

7.5.1 Bomb Threat/ Explosive Device

7.5.1.1 Telephone Threat

Personnel receiving telephoned threats attempt to get as much information as possible from the caller. A form is available for personnel to keep by their telephone to use as a guide for getting useful information from the caller. On conclusion of the call, personnel notify the BED and Security.

The BED evacuates the facility and questions personnel at the staging area regarding any suspicious objects in the facility. When Security personnel arrive, their instructions are followed.

7.5.1.2 Written Threat

Receivers of written threats handle the letter as little as possible and notify the BED and Security. Depending on the content of the letter, the facility may or may not be evacuated. The letter is turned over to Security personnel and their instructions are followed.

7.5.2 Hostage Situation/Armed Intruder

The discoverer of a hostage situation/armed intruder reports the situation to the BED and to the POC via 911 or 373-3800, if possible. The BED, after conferring with Security personnel, may covertly evacuate areas of the facility not observable by the hostage taker(s)/intruder. No alarms will be sounded.

Security will determine the remaining response actions and will activate the Hostage Negotiating Team, if necessary.

7.5.3 Suspicious Object

The discoverer of a suspicious object reports it to the BED and to the POC via 911 or 373-3800, and, if possible, ensures that the object is not disturbed.

The BED orders evacuation of the facility and (based on the description provided by the discoverer) attempts to determine the identity or owner of the object. This may be done by questioning facility personnel at the staging area.

If the identity/ownership of the object cannot be determined, then Security assumes command of the incident. The canine unit is used to determine if the package contains explosives. If there is a positive indication of explosives or it cannot be assured that there are no explosives, then the Richland Police Department's Emergency Ordinance Disposal Team is dispatched to the facility to properly dispose of the device.

8.0 TERMINATION OF EVENT, INCIDENT RECOVERY, AND RESTART OF OPERATIONS

The DOE/RL-94-02, *Hanford Emergency Management Plan*, Section 9.0, describes these considerations. The extent by which these actions are employed is based upon the incident classification of each event. In addition, DOE/RL-94-02 contains considerations for the management of incompatible wastes, which may apply.

8.1 Termination of Event

For events where the Hanford Emergency Operations Center (Hanford EOC) is activated, the RL/ORP Emergency Manager has the authority to declare event termination. This decision is based on input from the BED, Incident Commander, and other emergency response organization members. For events where the Hanford EOC is not activated, the incident command system and staff declare event termination.

8.2 Incident Recovery and Restart of Operations

A recovery plan is developed when necessary. A recovery plan is needed following an event where further risk could be introduced to personnel, the facility, or the environment through recovery action and/or to maximize the preservation of evidence. Depending on the magnitude of the event and the effort required to recover from the event, recovery planning may involve personnel from DOE-RL and other contractors. If a recovery plan is required, it is reviewed by appropriate personnel and approved by a Recovery Manager before restart. Restart of operations is performed in accordance with the approved plan.

If this plan is to be implemented for a RCRA emergency (see Section 4.0), the Washington State Department of Ecology is notified before operations can resume. The DOE/RL-94-02, *Hanford Emergency Management Plan*, Section 5.1 discusses different reports to outside agencies. This notification is in addition to other required reports and includes information documenting the following conditions:

1. There are no incompatibility issues with the waste and released materials from the incident.
2. All the equipment has been cleaned, fit for its intended use, and placed back into service. The notification may be made via telephone conference. Additional information that Ecology requests regarding these restart conditions will be included in the required 15-day report identified in WAC 173-303-360(2)(k).

For emergencies not involving activation of the Hanford EOC, the BED ensures that conditions are restored to normal before operations are resumed. If the Hanford Site Emergency Response Organization was activated and the emergency phase is complete, a special recovery organization could be appointed at the discretion of DOE-RL to restore conditions to normal. This process is detailed in DOE-RL and contractor emergency procedures. The makeup of this organization depends on the extent of the damage and its effects. The appropriate contractor's management appoints the onsite recovery organization.

8.3 Incompatible Waste

After an event, the BED or the onsite recovery organization ensures that no waste that might be incompatible with the released material is treated, stored, and/or disposed of until cleanup is completed. Cleanup actions are taken by facility personnel or other assigned personnel. DOE/RL-94-02, Section 9.2.3, describes actions to be taken.

Waste from cleanup activities is designated and managed as newly generated waste. A field check for compatibility before storage is performed as necessary. Incompatible wastes are not placed in the same container. Containers of waste are placed in storage areas appropriate for their compatibility class.

If incompatibility of waste was a factor in the incident, the BED or the onsite recovery organization ensures that the cause is corrected.

8.4 Post-Emergency Equipment Maintenance and Decontamination

All equipment used during an incident is decontaminated (if practicable) or disposed of as spill debris. Decontaminated equipment is checked for proper operation before storage for subsequent use. Consumable and disposed materials are restocked. Fire extinguishers are recharged or replaced.

The BED ensures that all equipment is cleaned and fit for its intended use before operations are resumed. Depleted stocks of neutralizing and absorbing materials are replenished, self-contained breathing apparatus are cleaned and refilled, protective clothing is cleaned or disposed of and restocked, etc.

9.0 EMERGENCY EQUIPMENT

Hanford Site emergency resources and equipment are described and listed in DOE/RL-94-02, Appendix C.

9.1 Fixed Emergency Equipment

FIXED EMERGENCY EQUIPMENT		
TYPE	LOCATION	CAPABILITY
Safety shower/eye wash station	1 - Aqueous makeup room -south side. Next to truck load-in airlock and chemical storage tank. 1 - Condenser room basement, SE corner. 1 - Condenser room 4th floor	Assist in flushing chemicals/materials from body and/or eyes and face.
Wet pipe sprinkler system	Located throughout the facility.	Assist in the control of fire.
Fire alarm pull boxes	Located throughout the facility.	Activates the building fire alarm and notifies the HFD.
Emergency lighting (lanterns)	Located throughout the facility	Provide 1 hour of temporary lighting.
Back-up diesel generator	50 ft SE of the 242-A main entrance	Provide back-up power.

9.2 Portable Emergency Equipment

PORTABLE EMERGENCY EQUIPMENT		
TYPE	LOCATION	CAPABILITIES
General purpose fire extinguishers	Throughout the 242-A Evaporator facility.	Fire suppression for class A, B, C, fires.
Halon fire extinguishers	Two in control room.	Suppress electrical fires.

9.3 Communications Equipment/Warning Systems

COMMUNICATIONS EQUIPMENT		
TYPE	LOCATION	CAPABILITY
Fire alarms	Located throughout the facility in halls, corridors, and locker rooms.	Audible throughout the 242-A Evaporator Building
Roof siren	242-A Evaporator roof	Provide warning to personnel to take cover or evacuate.
Operations process alarms from MCS or hard wired alarm panels)	242-A Evaporator control room	Audible in the 242-A Evaporator control room.
Public address system (PAX)	Located throughout the 242-A Evaporator Building (except in pump and evaporator rooms)	Provides communications and public address capabilities.
Portable Radios	242-A control room	Communication to the 242-A control room.
Telephone	242-A control room, office areas, AMU room, and condenser room.	Internal and external communications. Allows notification of outside resources (HFD, Hanford Patrol, etc.)
Crash alarm	242-A control room	Audible in the 242-A control room

9.4 Personal Protective Equipment

PERSONNEL PROTECTIVE EQUIPMENT		
TYPE	LOCATION	CAPABILITY
Self-contained breathing apparatus (SCBA)	Two located in the 242-A Evaporator control room	Provides breathable air for initial response to emergency, and recovery activities when required
Respirators	242-A respirator storage room	Filtered air for recovery of known hazards

9.5 Spill Control and Containment Supplies

SPILL KITS AND SPILL CONTROL EQUIPMENT		
TYPE	LOCATION	CAPABILITY
Organic and inorganic spill kits.	Survey area next to personnel protective equipment storage room, wall mounted	Provides spill control for organic and inorganic materials

9.6 Incident Command Post

For emergencies not requiring evacuation, the BED and support personnel will assemble in the 242-A Evaporator control room, or other location as identified by the BED.

10.0 COORDINATION AGREEMENTS

DOE-RL has established a number of coordination agreements, or memoranda of understanding (MOU) with various agencies to ensure proper response resource availability for incidents involving the Hanford Site. A description of the agreements is contained in DOE/RL-94-02, Section 3, Table 3-1.

11.0 REQUIRED REPORTS

Post incident written reports are required for certain incidents on the Hanford Site. The reports are described in DOE/RL-94-02, Section 5.1.

12.0 PLAN LOCATION

Copies of this plan are maintained at the following locations:

- 242-A Evaporator Control Room
- 200 Area Effluent Treatment Facility Control Room
- Operations Managers Office (Building 2025EA Room 101)
- 200 Area LWPF Regulatory File

13.0 FACILITY/BUILDING EMERGENCY RESPONSE ORGANIZATION

TITLE	WORK LOCATION	WORK PHONE
Shift Operation Manager (SOM)	242-A Evaporator control room or 200 Area Effluent Treatment Facility Control Room	373-2737, Evaporator control room 373-9000, ETF control room
Operations Manager	2025EA/101	372-3142

Names and home telephone numbers of the BEDs are available from the POC (373-3800) in accordance with Hanford Facility RCRA Permit, Dangerous Waste Portion, General Condition II.A.4.

14.0 REFERENCES

DOE-0223, *Emergency Plan Implementing Procedure*

DOE-232.1, *Occurrence Reporting and Processing of Operations Information*, U.S Department of Energy, Washington D.C.

DOE/RL-94-02, *Hanford Emergency Management Plan*.

DOE-151.1, *Comprehensive Emergency Management System*

WAC 173-303, *Dangerous Waste Regulations, Washington Administrative Code*, Washington State Department of Ecology, Olympia, Washington.

29 CFR 1910.120, *Hazardous Waste Operations and Emergency Response*

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NIOSH, *Pocket Guide to Chemical Hazards*, National Institute of Occupational Safety and Health,
U.S. Department of Health and Human Resources, Public Health Service, Centers for Disease Control,
Washington, D.C.

Hanford Facility RCRA Permit, Dangerous Waste Portion, Washington State Department of Ecology,
Olympia, Washington, as amended.

ATTACHMENT A**Listing of Procedures and Documents****Site-Wide Procedures****DOE-0223, *Emergency Plan Implementing Procedures:***

- RLEP-1.1, *Hanford Incident Command System and Event Recognition and Classification, Appendix 1-2.M;*
- RLEP-3.4, *Emergency Termination, Reentry, and Recovery.*

Facility-Specific Emergency Response Procedures

- TO-685-001 Emergency Shutdown of Utility Support Systems
- TO-685-002 242A Evaporator Loss of Electrical Power
- TO-685-003 242A Evaporator Loss of Raw Water Systems
- TO-685-004 242A Evaporator Loss of K-1 Ventilation Systems
- TO-685-005 242A Evaporator Loss of the Steam Systems
- TO-685-006 242A Evaporator Loss of Compressed Air System
- TO-685-007 242A Evaporator Loss of MCS Control
- TO-685-008 242A Evaporator Pressure Hazards
- TO-685-009 Process Upset

- EP-685-010 242A Evaporator Evacuation
- EP-685-020 242A Evaporator Take Cover
- EP-685-030 242A Evaporator Volcanic Eruption and Ashfall
- EP-685-040 242A Evaporator Seismic Event
- EP-685-050 242A Evaporator Fire and/or Explosion
- EP-685-060 242A Evaporator High Radiation Area
- EP-685-070 242A Evaporator Bomb Threat
- EP-685-080 242A Natural Emergency/Security Contingency Event

WASTE MANAGEMENT PROJECT

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**BUILDING EMERGENCY PLAN
FOR 242-A EVAPORATOR**

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Hanford Facility RCRA Permit Modification

Part III, Chapter 2 and Attachment 18 305-B Storage Facility

Replacement Sections

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1.0 INTRODUCTION

This chapter briefly describes the permitting approach for the 305-B Storage Facility and provides an overview of the contents of the Hanford Facility RCRA Permit, Part III, Chapter 2, 305-B Storage Facility.

1.1 305-B STORAGE FACILITY PERMITTING APPROACH

The 305-B Storage Facility began operating under interim status in March 1989. This unit, classified as container storage, will be permitted under Washington State Department of Ecology (Ecology) Dangerous Waste Regulations, Washington Administrative Code (WAC) 173-303-806 and references therein (Ecology 1989).

The 305-B Storage Facility is used to receive, store, and prepare shipments of dangerous waste and radioactive mixed waste (RMIW) generated by Hanford Site programs. These wastes are primarily generated in support of research and development activities. Wastes are characterized in accordance with the guidelines in Chapter 3 to designate the wastes under the Dangerous Waste Regulations. They are then transported to 305-B by truck or light utility vehicle. Upon receipt at 305-B, unit personnel place wastes into proper storage areas depending on waste type and quantity. When a sufficient quantity of waste has been accumulated to allow for off-site treatment or disposal, wastes are manifested and inspected for shipment. They are then offered for transport to a permitted off-site treatment/disposal facility.

1.2 305-B STORAGE FACILITY PART B PERMIT APPLICATION CONTENTS

The 305-B storage Facility Part B Permit Application consists of 15 chapters:

- Introduction (Chapter 1.0)
- Facility Description and General Provisions
- Waste Characteristics (Chapter 3.0)
- Process Information (Chapter 4.0)
- Groundwater Monitoring (Chapter 5.0)
- Procedures to Prevent Hazards (Chapter 6.0)
- Contingency Plan (Chapter 7.0)
- Personnel Training (Chapter 8.0)
- Exposure Information Report (Chapter 9.0)
- Waste Minimization Plan (Chapter 10.0)
- Closure/Post-Closure Requirements (Chapter 11.0)
- Reporting and Recordkeeping (Chapter 12.0)
- Other Relevant Laws (Chapter 13.0)
- Certification (Chapter 14.0)
- References (Chapter 15.0).

A brief description of each chapter is provided in the following sections.

1.2.1 Facility Description and General Provisions (Chapter 2.0)

This chapter provides a general description of 305-B Storage Facility. A brief description and history of the Hanford Site also is provided.

1.2.2 Waste Characteristics (Chapter 3.0)

This chapter discusses waste types received at 305-B Storage Facility from various Hanford Site generating units. A waste analysis plan is included that provides the methodology for determining waste types.

1.2.3 Process Information (Chapter 4.0)

This chapter covers the detailed operation of the unit. Additional information is given concerning container descriptions and primary and secondary containment systems.

1.2.4 Groundwater Monitoring (Chapter 5.0)

This chapter explains that 305-B Storage Facility is not operated as a dangerous waste surface impoundment, waste pile, land treatment unit, or landfill. Therefore, groundwater monitoring is not required.

1.2.5 Procedures to Prevent Hazards (Chapter 6.0)

This chapter discusses hazard prevention and emergency preparedness equipment, structures, and procedures.

1.2.6 Contingency Plan (Chapter 7.0)

This chapter provides information on contingency planning that 305-B Storage Facility has in place that will lessen the potential impact on public health and the environment, in the event of a facility emergency.

1.2.7 Personnel Training (Chapter 8.0)

This chapter outlines the training program used for 305-B Storage Facility employees whose primary duties are identified as being associated with dangerous waste and RMW management.

1.2.8 Exposure Information Report (Chapter 9.0)

This chapter explains that 305-B Storage Facility will not store, treat, or dispose of dangerous waste in a surface impoundment or a landfill. Therefore, exposure information is not required.

1.2.9 Waste Minimization Plan (Chapter 10.0)

This chapter discusses the program to minimize the volume or quantity and toxicity of waste generated at 305-B Storage Facility. The regulatory basis for, and objectives of the waste minimization program are discussed. Waste generating units are described and specific procedures for minimizing waste are discussed.

1.2.10 Closure/Post-Closure Requirements (Chapter 11.0)

This chapter describes how the unit will be decontaminated and closed. A closure schedule is provided. The unit is to be clean closed; therefore, no post-closure plan is included.

1.2.11 Reporting and Recordkeeping (Chapter 12.0)

This chapter summarizes commitments for reporting and recordkeeping made in other Part B permit application chapters.

1.2.12 Other Relevant Laws (Chapter 13.0)

This chapter discusses federal and state laws that govern the operation of 305-B Storage Facility, other than the Resource Conservation and Recovery Act (RCRA) of 1976, as amended, and the State of Washington Hazardous Waste Management Act of 1976, as amended.

1.2.13 Certification (Chapter 14.0)

This chapter contains the required certification signed by officials of Pacific Northwest National Laboratory (PNNL) and the Department of Energy, Richland Operations Office (RL) indicating that the information provided is true, accurate, and complete.

1.2.14 References (Chapter 15.0)

References used throughout this Part B permit application are listed in this chapter.

1.3 ACRONYMS, INITIALISMS AND ABBREVIATIONS

Acronyms, initialisms and abbreviations used throughout this Part B permit application are located at the beginning of the document between the Foreword and the Part A permit application.

1.4 DEFINITIONS

Definitions specific to this document are provided in this section. These definitions supplement those provided in WAC 173-303-040.

1.4.1.1 Facility

Dependent on context, the term 'facility', as used in this permit application, could refer to:

- A facility as defined in WAC 173-303-040
- Building nomenclature commonly used at the Hanford Facility. In this context, the term 'facility' remains as part of the title for various waste management units (e.g., 616 Nonradioactive Dangerous Waste Storage Facility).

1.4.2 Generating Unit

Term inferred to have the same meaning as 'generator' as defined in WAC 173-303-440.

1.4.3 Hanford Facility

A single RCRA facility identified by the EPA/State Identification Number WA7890008961, that consists of over 60 waste management units included in the *Hanford Site Dangerous Waste Part A Permit Application* (DOE-RL 1988). Also, the contiguous portion of the Hanford Site that contains these waste management units and, for the purposes of RCRA, is owned and operated by the U.S. Department of Energy (excluding land north of the Columbia River, state-owned lands, and lands owned by the Bonneville Power Administration).

1.4.4 Hanford Site

The approximately 1,450 square kilometers (560 square miles) in southeastern Washington State owned by the United States government and commonly known as the Hanford Reservation.

1.4.5 Offsite Shipments

Shipments not considered to be onsite shipments.

1.4.6 Onsite Shipments

Shipments (1) from waste generating units to waste management units operated by DOE-RL, or (2) between waste management units operated by DOE-RL.

1.4.7 Waste Management Unit

Term inferred to have the same meaning as 'dangerous waste management unit' as defined in WAC 173-303-040. Also inferred to have the same meaning as 'treatment, storage, and/or disposal (TSD) unit'.

1.5 PERMIT MODIFICATIONS

This section identifies how changes to this document will be handled.

1.5.1 Minor Modifications

Certain revisions to this document may be made without issuance of a draft permit and public notice. These types of modifications are called 'minor modifications' per WAC 173-303-830. These modifications are further subdivided as follows:

1.5.1.1 Modifications Without Ecology's Prior Approval

Certain modifications may be made without Ecology's prior approval. After revision, however, the revised page(s) must be incorporated in all outstanding controlled copies of the document (including those distributed to EPA and Ecology). Revisions meeting this criterion are as follows:

- Correction of typographical errors
- Changes to the list of facility emergency coordinators
- Changes to the list of emergency equipment
- Inclusion of new or updated maps
- Alteration of items in the contingency plan necessitated to the sitewide emergency plan and/or PNL-MA-11
- Change of contractor that co-operates the 305-B Storage Facility
- Any other minor modifications allowed by WAC 173-303-830 named in Section 1.5.1.2, below by changes with DOE-RL and not.

1.5.1.2 Modifications With Ecology's Prior Approval

Certain modifications may be processed as 'minor modifications' per WAC 173-303-840, but require prior submittal for Ecology's approval. If Ecology does not respond within 60 days from their receipt of the proposed modification, the modification will take effect as a minor modification. At the end of the 60-day period, the revised page(s) must be incorporated in all outstanding controlled copies of the document (including those distributed to EPA and Ecology). Revisions meeting this criterion are as follows:

- Addition and/or deletion of dangerous waste codes for waste to be stored
- Changes in the annual quantities of regulated waste to be handled
- Changes to the 305-B Storage Facility and associated revised drawings
- Revision of forms included in this document.

1.5.2 Other Modifications

Modifications that are not considered to be 'minor modifications' per WAC 173-303-830 must follow the modification procedures specified in WAC 173-303-830.

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3.0 WASTE CHARACTERISTICS [C]

305-B Storage Facility receives a wide variety of dangerous waste and limited quantities of RMW. This variety results from the nature of the activities generating the waste, namely research and development. This chapter describes the characteristics of the waste received at 305-B Storage Facility, and presents the waste analysis plan used to characterize these waste to ensure proper management.

3.1 CHEMICAL, BIOLOGICAL, AND PHYSICAL ANALYSIS [C-1]

The dangerous waste and RMW stored at 305-B Storage Facility can be categorized as originating from five basic sources:

- Waste from nonspecific sources
- Discarded commercial chemical products
- Waste from research activities using radioactive isotopes
- Waste from chemicals synthesized or created in research laboratories
- Discarded commercial products exhibiting dangerous waste characteristics and/or criteria.

Each of these waste categories is discussed below, including waste descriptions, hazard characteristics, and bases for hazard designations. This information includes that which must be known to treat, store, or dispose of the waste, as required under WAC 173-303-806(4)(a)(ii).

Waste from Nonspecific Sources. Waste from nonspecific sources consist of those listed waste identified in WAC 173-303-9904. The Part A permit application for 305-B Storage Facility identifies the following waste from this category with their estimated annual management quantities:

- F001 - Spent halogenated degreasing solvents and sludges (2,000 kg/yr)
- F002 - Spent halogenated solvents and still bottoms (2,000 kg/yr)
- F003 - Spent nonhalogenated solvents and still bottoms (5,000 kg/yr)
- F004 - Spent nonhalogenated solvents and still bottoms (1,000 kg/yr)
- F005 - Spent nonhalogenated solvents and still bottoms (5,000 kg/yr)
- F027 - Discarded polychlorinated phenol formulations (200 kg/yr).

These halogenated and nonhalogenated solvents are in the form of spent solvents; no still bottoms are generated. Degreasing solvents (F001), as well as spent halogenated solvents (F002), are used primarily in research although some commercial applications do exist (e.g., printing, duplicating). Spent non-halogenated solvents (F003, F004, and F005) also come primarily from research laboratories, although a significant amount of methyl ethyl ketone (F005) is generated through maintenance applications such as the Craft Services paint shop (350 Building). Manufacturing activities are not performed at Hanford; therefore, dangerous waste from specific sources (WAC 173-303-9904 "K" Waste) are not generated.

Waste in this category (F Waste) are generally received at 305-B Storage Facility in 1-gal and 5-gal flammable liquid safety cans ("flash cans"). Methyl ethyl ketone, which is received in 55-gal drums, is an exception.

Waste in this category are designated on the basis of the generator's knowledge (i.e., information from container labels or material safety data sheets), or by sampling. Sampling is performed if the generating unit does not have information to document the composition and characteristics of the waste. The waste generator is responsible for specifying the characteristics of the waste on the basis of knowledge of the chemical products used (i.e., information supplied by the manufacturer) and the process generating the waste. These listed waste are all designated as dangerous waste (DW) unless the generator determines through process knowledge (i.e., knowledge of materials used and concentrations used) that waste F001

or F002 contain greater than 1% halogenated hydrocarbons. Waste with greater than 1% halogenated hydrocarbons are designated as extremely hazardous waste (EHW). Waste F001 through F005 are also designated as land disposal restricted (LDR) waste under 40 CFR 268.30 (solvent waste). Waste F027 is designated as an LDR waste under 40 CFR 268.31 (dioxin-containing waste).

Discarded Chemical Products. Discarded chemical products consist of those products listed in WAC 173-303-081. The Part A permit application for 305-B Storage Facility identifies all of the discarded chemical products listed in WAC 173-303-9903 (P001 through P123 and U001 through U359) and specifies an estimated maximum annual management quantity, based on prior experience, of 200 kg/yr for each of these waste. Only a few of these waste are typically generated at any one time. The Part A permit application listed all of these waste, however, because the wide variety of research activities conducted at Hanford presents the potential to generate any of these waste.

These waste (P waste and U waste) are typically received at 305-B Storage Facility in the manufacturer's original container. Approximately 70% of these waste are in partially full, opened containers and the remaining 30% are in sealed, unopened containers. These containers typically consist of glass and polyethylene jars or bottles and metal cans having a volume equal to or less than 4 liters.

Waste in this category are designated on the basis of the generator's knowledge. As these waste are usually in original containers, information on the container label is verified by generator knowledge (i.e., knowledge that material is in its original container) and is used to identify contents. Waste in 'as procured' containers (i.e., original container with intact label) are not sampled. These listed waste contain those designated as DW as well as those designated as EHW. These waste are also subject to LDR regulations under 40 CFR 268, including disposal prohibitions and treatment standards.

Waste from Research Activities Using Radioactive Isotopes. Dangerous waste from research activities using radioactive isotopes are RMW. These waste are generated in laboratories performing chemical and physical research, and consist primarily of radiologically contaminated chemicals or lead stacked in sealed 55-gal drums. These waste are designated on the basis of the generator's knowledge or on the basis of sampling and analysis. The generator's knowledge is used if the generator has kept accurate records of the identities and concentrations of constituents present in the waste. For example, many generating units keep log sheets for accumulation containers in satellite areas to keep a record of waste constituents. If information available from the generator is inadequate for waste designation, the waste are sampled (as described in Section 3.2) and the results of the analysis are used for designation. These waste include those designated as dangerous waste mixtures under WAC 173-303-084 and also those designated as characteristic dangerous waste under WAC 173-303-090. The Part A permit application for 305-B Storage Facility includes all categories of toxic, persistent, and carcinogenic waste mixtures (i.e., both DW and EHW). While not all of these waste are currently generated or have been generated, the wide variety of research activities conducted at Hanford presents the potential that these waste could be generated and require subsequent management at 305-B Storage Facility. Similarly, the Part A permit application includes the characteristic dangerous waste categories D001 through D043 (i.e., ignitable, corrosive, reactive, and TCLP toxic due to metals or organics content).

Flammables (i.e., flash point less than 100° Fahrenheit) will not be stored in the below-grade RMW cell; however, ignitables (D001 due to oxidizer content) will be stored in this cell. Flammable RMW is not stored below grade due to Fire Code restrictions. These waste are stored above the RMW cell in a flammable storage locker. The flammable RMW locker is equipped with secondary containment to provide greater than 100% secondary containment volume.

The waste in this category could include those designated as either DW or EHW. The waste could also be federal LDR waste regulated under 40 CFR 268 as well as state LDR waste regulated under WAC 173-303-140 (e.g., leachable inorganic waste).

Waste from Chemicals Synthesized or Created in Research Laboratories. Waste from chemicals synthesized or created in research laboratories typically consist of organics in quantities of 100 g or less, received in small containers.

These waste are designated on the basis of the generator's knowledge or on the basis of sampling and analysis. The generator's knowledge is used if the generating unit has kept accurate records of the identities and concentrations of constituents present in the waste (e.g., log sheets for accumulation containers). If information available from the generating unit is inadequate for waste designation, the waste are sampled (as described in Section 3.2) and the results of the analysis are used for designation. These waste include those designated as dangerous waste mixtures under WAC 173-303-084 and also those designated as characteristic dangerous waste under WAC 173-303-090. The Part A permit application for 305-B Storage Facility includes all categories of toxic, persistent, and carcinogenic waste mixtures (i.e., both DW and EHW). While not all of these waste are currently generated or have been generated, the wide variety of research activities conducted at Hanford presents the potential that these wastes could be generated and require subsequent management at 305-B Storage Facility.

The wastes in this category could include those designated as either DW or EHW. These wastes could also be federal LDR wastes regulated under 40 CFR 268 as well as state LDR wastes regulated under WAC 173-303-140 (e.g., organic/carbonaceous wastes).

Discarded Commercial Products Exhibiting Dangerous Waste Characteristics and/or Criteria. Many discarded chemical products handled in 305-B Storage Facility are not listed in WAC 173-303-9903 and are still considered dangerous waste since they exhibit at least one dangerous waste characteristic and/or criterion (WAC 173-303-090 and WAC 173-303-084). These wastes are included with those listed in the Part A permit application under waste codes D001 through D043, WT01, WT02, WP01, WP02, WP03, WC01, and WC02. These wastes are typically received at 305-B Storage Facility in the manufacturer's original container. Approximately 70% of the waste are in partially full, opened containers; the remaining 30% are in sealed, unopened containers for which no local recycle/reuse options can be identified. These containers typically consist of glass and polyethylene jars or bottles and metal cans having a maximum volume of 4 liters.

Waste in this category are designated based on the generator's knowledge. As these waste are usually in their original containers, information on the container label is verified by the generator's knowledge and is used to identify the contents. These waste contain those designated as DW as well as those designated as EHW. These waste could also be federal LDR waste regulated under 40 CFR 268 as well as state LDR waste regulated under WAC 173-303-140 (e.g., organic/carbonaceous waste, leachable inorganic waste).

3.1.1 Containerized Waste [C-1a]

The container storage areas at 305-B Storage Facility meet the containment system requirements of WAC 173-303-630(7)(c). Testing or documentation that the dangerous waste stored at 305-B Storage Facility do not contain free liquids is not required.

3.1.2 Waste in Tank Systems [C-1b]

This section does not apply to the 305-B Storage Facility because waste are not stored in tanks.

3.1.3 Waste in Piles [C-1c]

This section does not apply to the 305-B Storage Facility because waste are not stored in piles.

3.1.4 Landfill Waste [C-1d]

This section does not apply to the 305-B Storage Facility because waste are not placed in landfills.

3.1.5 Waste Incinerated and Waste Used in Performance Tests [C-1e]

This section does not apply to the 305-B Storage Unit because waste are not incinerated.

3.1.6 Waste to be Land Treated [C-1f]

This section does not apply to the 305-B Storage Facility because waste do not undergo land treatment.

3.2 WASTE ANALYSIS PLAN [C-2]

This section describes the procedures used to obtain the information necessary to manage waste in accordance with the requirements of WAC 173-303 (Ecology 1989). This section is intended to correlate with the Waste Analysis Plan submitted in the Hanford Facility Permit Application (DOE/RL-91-28). If that plan is modified, this plan will be modified to reflect those changes.

Most of the information necessary to manage waste at 305-B Storage Facility is obtained from generating units without the need to perform detailed chemical, physical, and biological analysis. This approach is used for the following reasons:

- All waste stored at 305-B Storage Facility are generated on the Hanford Site and/or by PNNL research programs; effective administrative control can be maintained over individual waste generating units (i.e., the same organization generates the waste and operates the storage unit)
- Most of the wastes stored at 305-B Storage Facility are discarded chemical products for which knowledge of waste characteristics is available without further analysis
- Many of the waste stored at 305-B Storage Facility result from research activities that are carefully controlled and documented; this documentation includes information on chemical constituents.

Information provided by waste generating units is verified before wastes are accepted for transport to 305-B Storage Facility (e.g., wastes are inspected to verify that they are as described in the disposal request). Generating units are not required to sample wastes unless they have inadequate documentation of waste characteristics. Verification sampling of wastes to be shipped offsite from 305-B Storage Facility is required by the disposal contractor and is performed by the contractor.

Because of the importance of administrative controls for the purposes of waste analysis, procedures for management of wastes from the time of generation through storage at 305-B Storage Facility are described below. These procedures demonstrate how sufficient knowledge is obtained from generating units to properly manage dangerous and mixed waste at 305-B Storage Facility. In the event that such knowledge is not available, sampling and analysis is required by 305-B Storage Facility procedures prior to shipment to the storage unit. Detailed information related to sampling and analysis is presented in Sections 3.2.1 through 3.2.6.

Volumetric Description of Waste. A wide range of waste volumes is collected from research and support activities. The largest unit container collected is a 55-gal drum, which in some circumstances may require overpacking into an 85-gal salvage drum, while the smallest is a trace amount in a small vial.

Large volume containers (greater than 4 L) commonly contain chemicals such as those listed in WAC 173-303-9903 and -9904 and in 40 CFR 261.33, or commercial products which exhibit one or more of the dangerous waste characteristics or criteria. Greater than 99% of the containers generally contain chemicals for which information is easily accessible to determine dangerous designation. This information is generally obtained from the container label, for those waste in original containers, or from the material safety data sheet (MSDS) for the product.

Notification for Storing of Waste. The waste analysis process begins when the waste management organization is notified of the presence of a chemical or mixed waste. This notification is accomplished by the generating unit completing and transmitting a Chemical Disposal/Recycle Request Form (Fig. 2-8). The form describes the volume and chemical composition of waste in each waste container for disposal. Hazard and compatibility information are obtained for each item on the disposal request form to ensure the safety of the waste management organization staff that collect and transport the waste and to ensure safe and appropriate storage in 305-B Storage Facility.

The compatibility and hazard designation are determined using references listed in WAC 173-303-070 and those in Table 3-1. The priority of hazard designation for those substances with multiple hazards or for mixtures is the same used by the DOT in 49 CFR 173.2 (DOT 1988) as shown below:

- 1) Radioactive material
- 2) Poison A
- 3) Flammable gas
- 4) Nonflammable gas
- 5) Flammable liquid
- 6) Oxidizer
- 7) Flammable solid
- 8) Corrosive material (liquid)
- 9) Poison B
- 10) Corrosive material (solid)
- 11) Irritating materials
- 12) Combustible liquid (exceeding 110 gal)
- 13) Other Regulated Material (ORM)-B
- 14) ORM-A
- 15) Combustible liquid (less than 110 gal)
- 16) ORM-E.

Reference sources used for determining waste designations and compatibility must meet four distinct needs of the dangerous waste manager and sample collector. They must enable each to:

- Identify those waste which are designated dangerous in accordance with WAC 173-303 and whether those waste are DW or EHW
- Determine whether the waste is restricted from land disposal under 40 CFR 268 or WAC 173-303-140 and, as appropriate, complies with treatment standards under 40 CFR 268 or WAC 173-303-140
- Identify and verify specific morphological characteristics of waste in solid or solution form
- Outline how to safely handle, transport, analyze, store, and dispose of the waste product or sample.

Table 3-1. Typical Reference Materials.

1. Condensed Chemical Dictionary, 11th Ed., Hawley, 1987.
2. The Merck Index, 11th Edition, 1989.
3. Registry of Toxic Effects of Chemical Substances, U.S. Department of Health, Education, and Welfare. National Institute for Occupational Safety and Health.
4. The Sigma-Aldrich Library of Chemical Safety Data, 2nd Edition, R. E. Lenga, Ed., 1988.
5. NIOSH Pocket Guide to Chemical Hazards, U.S. Department of Health and Human Services, 1985.
6. Handbook of Toxic and Hazardous Chemicals and Carcinogens, Second Edition, Marshall Sittig, Noyes Publications, Park Ridge, New Jersey, 1985.
7. A Method for Determining the Compatibility of Hazardous Waste, EPA-600/2-80-076, U.S. Environmental Protection Agency, Cincinnati, Ohio, 1980.
8. CRC Handbook of Chemistry and Physics.

Physical Analysis. Visual validation as a physical analysis procedure is strongly relied upon to confirm the nature of a waste collected or sampled, and to determine the accuracy of the disposal request information received from the generating unit. It is impractical for the waste management organization to chemically analyze each container or vial of waste accepted for storage in 305-B Storage Facility since the amount can exceed 10,000 per year. A more realistic approach to reducing risks to safety and the environment, and one implemented at 305-B Storage Facility, includes trained and experienced personnel performing a visual inspection of the waste and direct inquiry of the generating unit's personnel. The waste is inspected to verify that it matches the description on the disposal request. If the waste is a discarded product, the contents of the container are inspected to verify that they match the description of the product. For other waste, e.g., spent solvents, waste descriptions are compared with the products in use at the generating unit. Generating unit personnel are queried concerning the source of the waste and the materials used in the process generating the waste. This information is compared to the description of the waste on the disposal request. If, after visual inspection of the waste and interrogation of the generating unit personnel, any doubt remains as to the true identity of the waste, the waste is sampled and analyzed by the generating unit as described in Sections 3.2.1 through 3.2.6.

Waste Collection at the Generating Unit. When satisfactory information has been obtained from the Request for Disposal/Recycle Form, waste management organization staff visit the generating unit site and make a final inspection of the waste containers to determine whether the disposal request form and contents label information match completely. If the information on the disposal request matches with the container labeling and visual inspection, the waste are approved for storage. If discrepancies are found, the generating unit is required to resubmit the disposal request with accurate information. Unknown or unidentified materials are sampled by generating unit staff for identification of constituents and remain at the generating unit until the composition has been determined. Generating units must arrange for sampling and analysis of all unknown materials, as described in Sections 3.2.1 through 3.2.6.

Labeling and Marking. After inspection of the waste at the generating unit, the approved waste are assigned a unique computer identification number and hazard classification. The waste containers are then marked and labeled in compliance with WAC 173-303-190 (DOT marking and labeling), and Washington "Hazardous Waste" markings. Waste meeting Washington dangerous waste criteria under WAC 173-303-084 or 173-303-090 are marked "Toxic" (for waste designated WT01 or WT02), "Persistent" (for waste designated WP01, WP02, or WP03), and/or "Carcinogenic" (for waste designated WC01 or WC02) in accordance with WAC 173-303-630(3). In addition, each waste container is labeled with a list of constituents and/or an appropriate hazard description. The containers are also labeled indicating compatibility group and cell location, and with a unique computer-generated identification number created by the tracking system described below. This computerized information helps the waste handlers ensure safe handling, storage, retrieval and transportation of dangerous waste.

Transportation. The labeled containers are transported to 305-B Storage Facility by PNNL staff responsible for transporting waste are trained in applicable DOT requirements and emergency response. Waste are transported using a truck or light utility vehicle. For transport on roads accessible to the public, the vehicles are placarded in compliance with DOT regulations and manifested in compliance with WAC 173-303-180, as applicable.

Waste Handling, Storage, and Tracking at 305-B Storage Facility. Waste received at 305-B Storage Facility are put into 13 separate hazard classifications based on building and fire code restrictions for that type of facility:

- 1) Nonflammable RMW
- 2) Oxidizers
- 3) Acids, (organic and inorganic)
- 4) Poison
- 5) Caustics
- 6) Halogenated Hydrocarbons
- 7) Non-Regulated
- 8) Miscellaneous (ORM categories)
- 9) Washington State only waste (e.g., sodium chloride, sodium bicarbonate)
- 10) Flammable and combustible liquids
- 11) Flammable and combustible RMW
- 12) TSCA waste (PCB and asbestos) waste
- 13) Special Case waste (organic peroxides, explosives, etc.)

Each hazard class has designated and clearly identified locations within 305-B Storage Facility. Containers of dangerous waste (10 gal or less) are stored in a specific storage cabinet or shelf designed for that hazard class. The cabinets are located inside the appropriate storage cell (i.e., acid storage cabinet in acid cell). DOT-approved containers (greater than 10 gal capacity) are segregated by hazard class on the main high bay floor in 305-B Storage Facility.

Only sealed containers of nonflammable RMW are received in the below-grade RMW storage area located in the basement of 305-B Storage Facility. Containers of flammable RMW are stored above grade in an area adjacent to the high bay area. Small containers (five gallons or less capacity) are stored in a flammable storage cabinet. Larger containers, if intact, are stored in individual secondary containment devices, such as drip pans or pallets with secondary containment, adjacent to the cabinet. All chemical storage is in accordance with fire protection requirements of the 1988 Uniform Fire Code (International Conference of Building Officials 1988).

Recordkeeping and Inventory Control. A computer tracking system, CHEMHAZ HAZTRAK, has been developed to ensure that complete records of current inventory, packaging, and shipping data are maintained. Records of the initial waste disposal request form, waste analysis results if required, waste designation, and shipping manifest are maintained. These records are filed, cross-referenced, and transcribed into the computer data base management system. As waste are received for redistribution or disposal, the containers are labeled with the information described in the Labeling and Marking section above, including a unique computer identification number. This number is also written on the disposal request form. The label information is then entered into the computerized data base, along with the storage location within 305-B Storage Facility.

The endpoint of the process for most waste is proper packaging and transport of the waste to an approved recycler or treatment/disposal facility. Some commercial chemical products, however, are redistributed to other Hanford Site contractors, as described in Section 10.4. Final computer verification of the history

and ultimate disposal of each waste container is entered when the material is shipped from the 305-B Storage Facility.

Current waste quantities in inventory are checked weekly and reported to the unit operator, and monthly to the waste management organization manager as a part of the month-ending operation report. The inventory is checked by hazard class and provides a measure of current inventory versus established limits.

If it is determined that 305-B Storage Facility inventory is approaching the limit for a given hazard classification, additional waste of that hazard class is not accepted into 305-B Storage Facility until the inventory has been reduced. In this instance, the generating unit may be required to store the waste at the generator facility until shipment to an offsite facility can be arranged (<90 days).

Unknown Waste and Waste Constituent Verification. Containers with unknown waste compositions are not accepted at 305-B Storage Facility. In the event that 305-B Storage Facility staff are required to respond to a critical need of a generating unit in the future and pick up an unknown waste, it will be sampled and analyzed as described in Sections 3.2.1 through 3.2.6.

If, for any reason, 305-B Storage Facility personnel believe that more stringent analysis of non-reagent grade chemical waste is needed (i.e., flash cans and mixtures), they will request that the generating unit have the waste analyzed by an approved analytical laboratory. Reasons for this request may be questionable appearance of the waste, periodic confirmation of waste composition, or historically unreliable information from a particular generating unit. There is no established frequency for this sampling and analysis; it is conducted on an as-needed basis. This analysis must be performed in accordance with EPA SW-846 procedures (EPA 1986). Analytical laboratories in the area with these capabilities include IT Analytical Services (ITAS), Hanford Environmental Health Foundation (HEHF), PNNL, and Battelle Northwest private laboratories. The generating unit must also provide the laboratory analysis confirming the waste composition when the waste management organization picks up the waste. This analysis will become part of the 305-B Storage Facility Operating Record.

3.2.1 Parameters and Rationale [C-2a]

Waste testing parameters and the rationale for these parameters are summarized in Table 3-2. Testing parameters for each type of unknown waste were selected to obtain data sufficient to properly designate the waste under WAC 173-303-070 and to properly manage the waste. If limited information on the source of the waste is available, all of the parameters may not be required. For example, if waste oil is known to be from an area where no PCB is present, testing for PCB may not be required.

3.2.2 Test Methods [C-2b]

Waste testing methods and references to these methods are as specified in WAC 173-303-110(3) or approved by Ecology in accordance with WAC 173-303-110(5). These methods are summarized in Table 3-2. All methods are specified in *Chemical Testing Methods*, WDOE 83-13 (Ecology 1983) and/or *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods*, EPA SW-846 (EPA 1986).

3.2.3 Sampling Methods [C-2c]

Representative sampling may be requested by unit staff to ensure proper waste identification. Sampling may be performed by unit personnel or the generating unit producing the waste.

In all instances, sampling methods will conform to the representative sample methods referenced in WAC 173-303-110(2), i.e., ASTM standards for solids and SW-846 for liquids. The specific sampling methods and equipment used will vary with the chemical and physical nature of the waste material and the sampling circumstances.

Representative samples of liquid waste (vertical "core sections") will be obtained using a composite liquid waste sampler (COLIWASA) or tubing, as appropriate. The sampler will be long enough to reach the bottom of the container in order to provide a representative sample of all phases of the containerized liquid waste. If a liquid waste has more than one phase, each phase will be separated for individual testing and designation.

Table 3-2. Summary of Test Parameters, Rationales, and Methods.

Waste Type	Parameter	Rationale	Test Method
Spent halogenated solvent mixtures	Halogenated hydrocarbon content	Persistent dangerous waste per WAC 173-303-084(6)	WDOE persistence testing
	Flash point	Ignitable waste per WAC 173-303-090(5); Flammable waste storage limits	Pensky-Martens closed cup Setaflash closed cup
	Halogenated organic compounds	Land disposal restrictions for solvent and California List waste	TCLP leachate Volatile organic compounds by GC/MS ¹ Semivolatile organic compounds by GC/MS
	PCB content	Land disposal restrictions for California List waste	TCLP leachate PCBs by GC ²
Spent nonhalogenated solvent mixtures	Flash point	Ignitable waste per WAC 173-303-090(5); Flammable waste storage limits per UFC	Pensky-Martens closed cup Setaflash closed cup
	PCB content	Land disposal restrictions for California List waste	TCLP Leachate PCBs by GC
Waste oils	Flash point	Ignitable waste per WAC 173-303-090(5); Flammable waste storage limits; Flammable waste oil subject to requirements under WAC 173-303-515 when burned for energy recovery	Pensky-Martens closed cup Setaflash closed cup
Waste oils (continued)	PCB content	PCB contaminated waste with less than 50 ppm PCB may be listed under WAC 173-303-9904; Waste oil with greater than 2 ppm PCB subject to requirements under WAC 173-303-515 when burned for energy recovery	PCBs by GC

Waste Type	Parameter	Rationale	Test Method
	EP toxicity	EP toxic characteristic waste per WAC 173-303-090(8); Waste oil with elevated levels of As, Cd, Cr, Pb subject to requirements under WAC 173-303-515 when burned for energy recovery	EP metals by AA ³
	Halogenated hydrocarbon content	Persistent dangerous waste per WAC 173-303-084(6); Waste oil with elevated halogens subject to WAC 173-303-510 or -515 when burned for energy recovery	WDOE persistence testing
Aqueous waste	Corrosivity	Corrosive characteristic waste per WAC 173-303-090(6), Land disposal restrictions for California List waste	pH measurement; steel corrosion rate
	Reactivity	Reactive characteristic waste per WAC 173-303-090(7)	Sulfide - iodometric Cyanide - colorometric
	Toxicity Characteristic	Characteristic waste per WAC 173-303-090(8), Land disposal restrictions for California List waste	TCLP Leachate EP metals by AA Pesticides by GC
Aqueous Waste (continued)	Toxicity	Toxic waste mixtures per WAC 173-303-084(5)	Metals by ICP Volatile organic compounds by GC/MS Semivolatile organic compounds by GC/MS Toxicity tests
Organic waste	Flash point	Ignitable waste per WAC 173-303-090(5); Flammable waste storage limits	Pensky-Martens closed cup Setaflash closed cup
	Toxicity	Toxic waste mixtures per WAC 173-303-084(5)	Volatile organic compounds by GC/MS Semivolatile organic compounds by GC/MS Toxicity tests
	Halogenated hydrocarbon content	Persistent dangerous waste per WAC 173-303-084(6)	WDOE persistence testing
	Polycyclic aromatic hydrocarbon content	Persistent dangerous waste per WAC 73-303-084(6)	WDOE persistence testing

Waste Type	Parameter	Rationale	Test Method
Organic waste (continued)	PCB content	PCB contaminated wastes with less than 50 ppm PCB may be listed under WAC 173-303-9904	PCBs by GC
	Halogenated organic compounds	Land disposal restrictions for solvent and California List waste	TCLP leachate Volatile organic compounds by GC/MS Semivolatile organic compounds by GC/MS
	Free liquids	Land disposal restrictions for liquid waste	Paint filter test
Unknown solid waste	Corrosivity	Corrosive characteristic waste per WAC 173-303-090(6)	pH measurement
	Reactivity	Reactive characteristic waste per WAC 173-303-090(7)	Impact apparatus
	TCLP toxicity	TCLP toxic characteristic waste per WAC 173-303-090(8)	TCLP leachate EP metals by AA Pesticides by GC
	Toxicity	Toxic waste mixtures per WAC 173-303-084(5)	Metals by ICP Volatile organic compounds by GC/MS Semivolatile organic compounds by GC/MS Toxicity tests
Unknown Solid Waste (continued)	PCB content	PCB contaminated waste with less than 50 ppm PCB may be listed under WAC 173-303-9904	PCBs by GC
	Halogenated organic compounds	Land disposal restrictions for solvent and California List waste	TCLP leachate Volatile organic compounds by GC/MS Semivolatile organic compounds by GC/MS
	Free liquids	Land disposal restrictions for liquid waste	Paint filter test
Notes: ¹ GC/MS - Gas Chromatography/Mass Spectroscopy ² GC - Gas Chromatography ³ AA - Atomic Absorption ⁴ ICP - Inductively Coupled Plasma Emission Spectroscopy			

Other waste types that may require sampling are sludges, powders, and granules. Nonviscous sludges will be sampled using a COLIWASA. Highly viscous sludges and cohesive solids will be sampled using a trier, as specified in SW-846 (EPA 1986). Dry powders and granules will be sampled using a thief, also as specified in SW-846 (EPA 1986).

Samplers will be constructed of material compatible with the waste. In general, aqueous liquids will be sampled using polyethylene samplers, organic liquids using glass samplers, and solids using polyethylene samplers. Disposable samplers will be used whenever possible to eliminate the potential for cross-contamination. If nondisposable sampling equipment is used, it will be decontaminated between samples using the guidelines in the unit sampling procedures.

The number of samples collected will depend on the amount of waste present and on the heterogeneity of the waste as determined by observation. In most cases, there will be only one container of waste present. In such cases, only one vertical composite sample will be collected (e.g., COLIWASA). If more than one container is present, a random number of samples will be collected and analyzed statistically using the procedures specified in Section 9.2 of SW-846 (EPA 1986).

3.2.4 Frequency of Analyses [C-2d]

Dangerous waste types listed in Table 3-2 are sampled as needed on an individual container or batch basis before they are collected from the point of generation or prior to shipment offsite. After the dangerous constituents have been characterized, these waste streams will not be analyzed again until process or raw material changes occur.

3.2.5 Additional Requirements for Waste Generated Offsite [C-2e]

All waste stored at 305-B Storage Facility are generated on the Hanford Site and/or by PNNL research programs; in fact, most of the waste stored in the unit are generated within the 300 Area. Additional requirements for waste generated outside the 300 Area include proper manifesting (if appropriate) to 305-B Storage Facility and proper packaging for transport over public roadways. Although waste generated outside of the 300 Area may be considered to be generated offsite since they are transported to 305-B Storage Facility on roads accessible to the public, they are under the same administrative controls as waste that are generated onsite (i.e., in the 300 Area). There are no additional requirements, therefore, for waste generated offsite.

3.2.6 Additional Requirements for Ignitable, Reactive, or Incompatible Waste [C-2f]

As described in Section 2.1, waste stored at 305-B Storage Facility are divided into DOT hazard classes and stored in separate locations to ensure compatibility. The testing parameters identified in Table 3-2 are sufficient to properly identify the hazard class of unknown waste and assure proper separation of incompatible waste. The parameters in Table 3-2 are also appropriate to identify ignitable waste to ensure that these waste are stored in appropriate locations. The test parameters will also allow identification of those ignitable waste that are also flammable waste (i.e., flash point less than 100°F or 38°C). Identification of flammable waste is necessary since there are restrictions on the amount of flammable liquids that can be stored in 305-B Storage Facility.

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5.0 Groundwater Monitoring

Because the 305-B Storage Facility is operated as a container storage unit and not as a dangerous waste surface impoundment, waste pile, land treatment unit, or landfill as defined in WAC 173-303-645(I)(a), groundwater monitoring is not required.

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9.0 EXPOSURE INFORMATION REPORT

The 305-B Storage Facility does not store, treat, or dispose of hazardous waste in a surface impoundment or landfill as defined in 40 CFR 270.10. Exposure information report requirements under RCRA, Section 3019, therefore, are not applicable.

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10.0 WASTE MINIMIZATION PLAN

This chapter discusses the program to minimize the volume or quantity and toxicity of waste generated at the 305-B Storage Facility. The regulatory basis for, and objectives of, the waste minimization program are discussed. Waste generators are described and procedures for minimizing waste are discussed.

10.1 REGULATORY BASIS

The Hazardous and Solid Waste Amendments of 1984 to RCRA require that, whenever feasible, the generation of regulated hazardous waste be reduced or eliminated as expeditiously as possible. Section 3002(b) of RCRA requires certification of the following:

- The generator of the hazardous waste has in place a program to reduce the volume or quantity and toxicity of such waste to the degree determined by the generator to be economically practicable
- The proposed method of treatment, storage, and/or disposal is that practicable method currently available to the generator that minimizes the present and future threat to human health and the environment.

In addition, WAC 173-303-283(3)(h) requires each facility to prevent the use of processes that do not treat, detoxify, recycle, reclaim, and recover waste material to the extent economically feasible. This chapter provides the means to certify that a waste minimization program is in place for the 305-B Storage Facility.

10.2 THE 305-B STORAGE FACILITY WASTE MINIMIZATION OBJECTIVES

The 305-B Storage Facility waste minimization program is tied to the overall waste minimization program for the Hanford Site. The 305-B Storage Facility waste minimization program includes all practices that reduce, avoid, or eliminate dangerous waste generation.

The 305-B Storage Facility waste minimization program objectives are to:

- Minimize the volume of dangerous waste generated.
- Recover laboratory chemicals for redistribution and/or for reuse if practicable.
- To the extent that dangerous waste is generated, select management options that recycle, reclaim or reuse the waste for a beneficial purpose to the maximum extent feasible.
- Segregate dangerous waste from nondangerous waste if practicable.

Annually, a certification as required by 40 CFR 264.73(b)(9) will be placed in the unit Operating Record stating that a waste minimization program is in place. In addition, a Hanford Site-wide biennial report is made to the EPA containing a description of efforts made to minimize waste and certification that a waste minimization program is in place. The report will include information on the 305-B Storage Facility waste minimization program.

10.3 WASTE GENERATION CONTROL

As noted above, the 305-B Storage Facility is a storage unit receiving waste generated at other locations on the Hanford Site (principally the 300 Area) until the waste can be transported to a permitted offsite recycler or treatment, storage and/or disposal facility. The 305-B Storage Facility does not exercise direct control over the quantities or types of waste generated at Hanford. However, the 305-B Storage Facility does intercept certain laboratory chemicals delivered for disposal and makes them available for reuse or reclamation, thus reducing the amount of laboratory chemicals disposed as dangerous waste.

Very little hazardous waste is generated by unit operations. Most wastes are used protective clothing. Occasionally, spill cleanup residues may be generated.

Section 10.4 describes the methods used at the unit to eliminate or reduce the generation and/or offsite management of waste.

10.4 SPECIFIC WASTE MINIMIZATION PROCEDURES

The 305-B Storage Facility operates a program to intercept laboratory chemicals for reuse or reclamation. In some cases, laboratory chemicals delivered for disposal are in their original, unopened factory containers. In other cases, the containers have been opened and the contents partially consumed.

When unopened laboratory chemicals are delivered by generating units in their original factory containers, they are separately inventoried. This inventory is then provided to users of laboratory chemicals throughout PNNL and the PHMC in an effort to locate other users of the chemical. This inventory is published not less often than monthly. The unopened containers are retained for up to nine months before being consigned for offsite disposal.

Opened containers are also offered to other PNNL users for use where use of non-certified reagents is acceptable. Examples of such use would be neutralization of bench acid spills, solvent cleaning of glassware stains, etc. Opened containers are not accumulated for purposes of reuse, however, as are unopened reagents. Potential users must contact 305-B Storage Facility staff about availability of opened containers.

Liquid laboratory chemicals in small containers that cannot be redistributed onsite are bulked, if practicable, in accordance with the procedures described in Section 4.1.1.2. This activity serves to reduce the number of containers which are shipped and ultimately disposed as dangerous waste, since containers which are "empty" as defined in WAC 173-303-160(2) are crushed and disposed as solid waste rather than being included in the dangerous waste quantity (as occurs with labpacks).

Waste generated at the 305-B Storage Facility, while minimal, is managed to ensure that the quantity and toxicity are minimized.

PNNL has an operating procedure for the disposal of unit-generated waste, which includes proper responses for cleanup after dangerous waste spills. The response to dangerous waste spills is aimed at minimizing liquid and material used during spill cleanup.

Dangerous waste releases occurring within the 305-B Storage Facility are responded to and cleaned up as soon as possible in order to minimize the amount of cleanup-generated wastes. Releases are cleaned up in accordance with the procedures found in Section 4.1.1.8 and/or the 305-B Storage Facility contingency plan (Chapter 7.0).

Housekeeping and surveillance activities are performed daily to properly clean the unit in order to minimize the potential for dangerous waste generation. Floors in the operating area of the unit are cleaned using only dry sweeping compounds and/or damp mops. The use of free liquid or running water is not permitted without permission of the unit supervisor.

Site personnel are instructed not to dispose non-dangerous wastes (office trash, beverage containers, etc.) in dangerous waste containers. Dangerous waste containers are kept closed except when adding or removing waste, which helps prevent inadvertent addition of ordinary refuse.

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11.0 CLOSURE AND POSTCLOSURE REQUIREMENTS [I]

This chapter is submitted in accordance with the requirements of WAC 173-303- 806(4)(a)(xiii) to demonstrate that DOE-RL has developed a plan to ensure safe closure of the 305-B unit. In accordance with WAC 173-303-610, copies of the closure plan and all revisions will be maintained at 305-B Storage Facility until certification of closure completeness has been submitted and accepted by Ecology. A post-closure plan is not required because 305-B is not a disposal unit and all dangerous wastes and dangerous waste residues will be removed at the time of closure.

11.1 CLOSURE PLANS [I-1]

This plan presents the activities required for final closure of the 305-B Storage Facility at its maximum extent of operation. The wastes included are those regulated as dangerous waste and RMW. Partial closure will not be conducted. Closure activities are presented in sufficient detail such that the closure process is understandable and a closure schedule can be developed.

11.1.1 Closure Performance Standard [I-1a]

The 305-B Storage Unit will be closed in a manner that will minimize the need for further maintenance and eliminate post-closure release of dangerous/mixed wastes or dangerous/mixed waste constituents that could pose a risk to human health or the environment. This standard will be met by removal of all dangerous/mixed wastes and dangerous/mixed residues from the unit.

Closure activities will return the 305-B site to the appearance and use of surrounding land areas. After closure, the 305-B Storage Facility will be in a condition suitable for use to support research and development activities. This use is consistent with the surrounding land use.

If there is any evidence of spills or leaks from the unit into the environment, samples will be taken and analyzed to determine the extent of contamination in the soil, and if necessary, in groundwater. Evidence of spills or leaks will be obtained through sampling of unit structures accessible to the environment (e.g., floors) and through inspection of all barriers designed to prevent migration to the environment (e.g., sumps). If this sampling program indicates that contamination is present, the potential for migration of contamination to the environment will be evaluated. If potential migration appears likely, additional samples will be taken. In addition, if the inspections identify any potential contaminant migration routes (e.g., cracks in sumps), additional samples will be collected to determine whether migration has occurred. Spill reports and logs shall be consulted to determine potential areas of contamination.

Any contaminated soil will be excavated, removed, and disposed as dangerous or mixed waste (determination of dangerous or mixed waste status will be based on waste radioactivity). Soil will be decontaminated to the following levels, as required under WAC 173-303-610(2)(b):

- Background environmental levels for wastes which are listed under WAC 173-303-081 or WAC 173-303-082
- Background environmental levels for wastes which are characteristic dangerous wastes under WAC 173-303-090
- Designation limits for wastes that are designated under WAC 173-303-084, or WAC 173-303-101 through WAC 173-303-103.

Equipment and structural components will be decontaminated using the procedures described in Section 11.1.4. All residues resulting from decontamination will be sampled and analyzed, as described in Section 11.1.4.3, to determine whether they are dangerous wastes. All residues will be removed from the unit and transferred to a facility having the necessary permits. Residues containing listed wastes, having dangerous waste characteristics, or exceeding dangerous waste designation limits will be disposed as dangerous wastes.

11.1.2 Partial and Final Closure Activities [I-1b]

This plan identifies the steps necessary to perform final closure of the unit in order to meet the aforementioned closure performance standard (Section 11.1). Closure activities involve removal of dangerous and mixed wastes from the unit and decontamination of the unit. These activities can be implemented at any point during the active life of the unit. Partial closure of the unit will not be conducted. The entire 305-B Storage Unit will be in use at all times prior to closure. The entire unit, therefore, represents the maximum extent of the operation that will be unclosed during the unit's active life.

11.1.3 Maximum Waste Inventory [I-1c]

The 305-B Storage Unit is used to store a variety of different research-related wastes. The maximum inventory of wastes in storage at any time will be constrained by three factors:

- The total amount of dangerous/mixed waste in storage at 305-B Storage Facility at any time will not exceed the design capacity of 30,000 gal (it is typically 2,000 to 5,000 gal)
- The total amount of any particular dangerous/mixed waste in storage during any given year will not exceed the amounts given in the Part A permit application for 305-B Storage Facility (see Part A application)
- The total amount of dangerous/mixed waste by hazard class in storage at any one time will not exceed Uniform Building Code Class B Hazardous Material Quantity Restrictions (see Table 4-1).

Except on the relatively rare occasion when 85-gal overpacks are used, approximately 90% of all dangerous wastes shipped from the unit are contained in 55-gal drums, with the remaining 10% consisting of 30-gal and smaller containers.

11.1.4 Inventory Removal, Disposal or Decontamination of Equipment, Structures, and Soils [I-1d]

Steps for removing or decontaminating all dangerous/mixed waste containers, residues, and contaminated equipment are described below.

11.1.4.1 Inventory Removal.

Closure activities will be initiated by removal of the dangerous/mixed waste inventory present at 305-B Storage Facility at the time of closure. Inventory removal procedures will be identical to the waste handling, packaging, and manifesting activities associated with normal operation of the unit. All dangerous wastes present will be placed into proper containers according to currently accepted waste handling procedures; mixed waste will be placed into containers and meet Hanford specifications outlined in WHC-EP-0063, *Hanford Radioactive Solid Waste Packaging, Storage, and Disposal Requirements*. To the extent possible, chemicals will be bulked into larger containers. If wastes are bulked, containers will be emptied in compliance with WAC 173-303-160 so that they are not dangerous wastes. Small quantity laboratory chemicals that cannot be bulked will be packaged into labpack containers in compliance with the requirements of WAC 173-303-161. All containers of dangerous/mixed waste will be manifested, and custody transferred to a dangerous waste transporter having a proper dangerous waste identification number. Wastes will be transported to a permitted dangerous waste facility for treatment or disposal.

11.1.4.2 Decontamination of Building Equipment and Structures.

All equipment and structures in dangerous/mixed waste handling and storage areas will be decontaminated at the time of closure. Equipment and structures to be decontaminated include:

- Floors and walls of the four dangerous waste storage cells
- Floors, walls, and ceiling of high bay and flammable liquid bulking module areas

- 1 ▪ Floors and walls of remainder of first floor except for offices, work area, and lavatories/change rooms
- 2 ▪ Floors, walls, and ceiling of basement except equipment storage room
- 3 ▪ Interior surfaces of all secondary containment trenches
- 4 ▪ Fork lift and loading hoist
- 5 ▪ Asphalt ramp outside north high bay door.

6 Before decontamination, sampling and analysis will be performed to determine decontamination
7 requirements. In most cases, minimal decontamination consisting of washing or wiping will be
8 performed unless the sampling and analysis indicates the presence of high levels of contamination. In
9 order to determine whether such contamination exists, a systematic sampling approach designed to
10 identify the presence of "hot spots" will be employed. Structures (i.e., floors, walls, ceilings) to be
11 sampled before decontamination will be sampled on a regular grid with a spacing of 5 ft. This spacing
12 provides an 80% probability of detecting a circular area of contamination having a radius of 2.5 ft or
13 larger (Gilbert 1987, pp. 119-125). Biased sampling of areas more likely to have been contaminated by
14 unit operations, such as cracks or seams in the concrete floor or any visible stains, or areas of documented
15 spills or releases, will also be performed. If any areas of contamination are detected, more thorough
16 decontamination procedures will be used in those areas.

17 Structural surfaces will be sampled by collecting wipe samples at each grid point. At each sample
18 location, two samples will be collected within adjacent 1 ft square templates. One sample will be
19 collected using a gauze pad wetted with dilute nitric acid for extraction of inorganic contaminants. The
20 other sample will be collected with a gauze pad wetted with hexane for extraction of organic
21 contaminants. The procedure for collecting wipe samples is given in Appendix 11A.

22 Decontamination of equipment and structures will take place as described below. The magnitude of each
23 phase of the operation and estimated time for completion is included.

24 **11.1.4.2.1 Decontamination of Basement.** Once the RMW room has been completely emptied of stored
25 waste, any visible residues present will be scraped, vacuumed and/or swept up until visibly clean. All
26 residues thus obtained will be placed in open top drums and disposed of as appropriate. All waste
27 materials generated during the decontamination process of the RMW room will be surveyed by
28 radiological control technicians (RCTs) to determine whether the waste generated from decontamination
29 should be handled as RMW. After the above process is completed, wipe samples will be collected at
30 various points along the floors, walls, and ceiling of the basement.

31 Swab samples will be collected from the RMW room to test for dangerous waste contamination resulting
32 from storage activities. Any dangerous waste contamination found during this testing will be presumed to
33 have come from storage activities unless otherwise documented. Random and biased sampling locations
34 will be selected using the procedures noted in Section 11.4.4.

35 The swab samples will be analyzed to determine if the RMW storage area has been radioactively
36 contaminated. Baseline smears will have been documented prior to introduction of RMW. Radioactivity
37 has been selected as an indicator of contamination since it is present in the RMW and is easily detected.
38 Once the results from the testing are known, a decision can be made as to the appropriate decontamination
39 procedures. If no contamination is found on the swab samples, decontamination procedures will consist
40 of dusting, vacuuming, and wiping with soap and water. Vacuuming is performed using a commercial or
41 industrial vacuum equipped with a high-efficiency particulate air (HEPA) filter. The vacuum cleaner bag
42 containing captured particulates is disposed of as appropriate.

43 Dusting/wiping is done with a damp cloth or wipe (soaked with water or solvent) to remove dust from
44 surfaces not practically treatable with a vacuum. The cloth or wipe is also disposed of as appropriate.
45 Brushing or sweeping is used to clean up coarse debris.

46 Minimal time will be required for setup of the equipment. Labor requirements for the process should be
47 moderate. Minimal time will also be required for packaging debris and dismantling and removing
48 cleaning equipment. Little wastewater (only the contents of the buckets) will be generated by this

1 procedure. However, if contamination is found on the swab samples, more sophisticated decontamination
2 procedures must be implemented. The entire RMW storage room will be extensively treated via steam
3 cleaning. Applying steam from a hand-held wand to remove all residues from the surfaces will treat the
4 ceiling, all four walls, and the floor. The contaminated wastewater generated by this activity will be
5 contained by the designed spill controls already in place for waste storage areas. Pumps or vacuums will
6 be used to empty the wastewater from the containment area into polyethylene-lined, closed top drums.
7 These containers will be transported for proper management at an approved dangerous waste or RMW
8 TSD facility.

9 Although this procedure will require more time than the dusting, vacuuming, and wiping procedures
10 outlined above, time requirements are still considered to be minimal for the steam cleaning approach.
11 Wastewaters generated by this procedure are not anticipated to exceed 100 gal.

12 Following completion of decontamination, sampling will be performed, as described in Section 11.1.4.4,
13 to verify that decontamination is complete.

14 **11.1.4.2.2 Decontamination of Waste Handling Equipment.** All equipment will be decontaminated
15 first by solvent washing followed by steam cleaning, or disposed of as dangerous waste at an approved
16 disposal facility. The decision to dispose or decontaminate equipment will be made at the time of closure.
17 Whichever option, in the opinion of the Building Supervisor, is most environmentally and economically
18 feasible will be chosen. If the equipment is not considered to be substantially contaminated, the solvent
19 washing may not be performed. In this case, the steam cleaning technique only will clean the equipment.

20 All equipment to be decontaminated will be placed in one of the fully contained storage cells and
21 subjected to the solvent wash deemed most effective for the removal of the suspected contamination. The
22 equipment is then subjected to a final washing and rinsing by a steam-cleaning unit. All wastewaters will
23 be collected in the storage cell sumps, pumped to polyethylene-lined closed top drums, and transported
24 and disposed of as dangerous waste.

25 The time required for completion and wastewaters generated by these processes are largely dependent
26 upon the amount of equipment that needs to be treated. However, at this time, minimal time and effort
27 are anticipated. In addition, wastes to be generated are not anticipated to exceed 50 gal.

28 Following completion of decontamination, sampling will be performed, as described in Section 11.1.4.4,
29 to verify that decontamination is complete.

30 **11.1.4.2.3 Decontamination of Dangerous Waste Storage Cells.** Any visible contamination present in
31 the storage cells will be scraped and/or swept until visibly clean. All residues obtained from the
32 scraping/sweeping exercise will be placed in open top drums and disposed of as dangerous waste. Each
33 of the four storage cells will be steam cleaned and the generated wastewaters collected in each of the
34 storage cell's individual sumps. The wastewaters will be pumped from the sumps to polyethylene-lined,
35 closed top drums in preparation for disposal. No wastewaters will be mixed with scrapings, sweepings, or
36 wastewaters from other storage cells. Each sump area will be re-rinsed with water. This water will
37 similarly be pumped to containers for disposal.

38 The containerized wastewaters will be analyzed to determine if they are designated as dangerous waste
39 under WAC 173-303-070. If designated as dangerous, the wastewaters will be handled, transported, and
40 disposed of as dangerous waste. If not dangerous waste, the wastewater will be managed appropriately.
41 Total decontamination of the storage cells should be completed in no more than 2 weeks. Each of the
42 storage cells should have approximately 30 gal of wastewater generated during the cleaning and rinsing
43 process; therefore, a total of 120 gal of wastewater will need to be analyzed and disposed.

44 Following completion of decontamination, sampling will be performed, as described in Section 11.1.4.4,
45 to verify that decontamination is complete.

46 **11.1.4.2.4 Decontamination of High Bay, Flammable Liquid Bulking Module and Other First Floor**
47 **Areas.** Wipe samples will be collected at various points along the floors, walls, and ceiling of the entire
48 first floor, except for the office, supply/office area, lunch room, and rest room. The wipe samples will be

analyzed to determine if these areas have been contaminated with dangerous waste constituents. Once the results from the testing are known, a decision can be made as to the appropriate decontamination procedures.

If no contamination is found on the wipe samples, decontamination procedures will consist of dusting, vacuuming, and wiping. Vacuuming is performed using a commercial or industrial vacuum equipped with a HEPA filter. The vacuum cleaner bag containing captured particulates is disposed of as appropriate.

Dusting/wiping is done with a damp cloth or wipe (soaked with water or solvent) to remove dust from surfaces not practically treatable with a vacuum. The cloth or wipe is also disposed of as appropriate. Brushing or sweeping is used to clean up coarse debris.

Minimal time will be required for setup of the equipment. Labor requirements for the process should be moderate. Minimal time will also be required for packaging debris and dismantling and removing cleaning equipment. Little wastewater (only the contents of the buckets) will be generated by this procedure.

On the other hand, if contamination is found on the wipe samples, more sophisticated decontamination procedures must be implemented. The affected areas will be extensively treated via steam cleaning. Applying steam with a hand-held wand to remove all residues from the surfaces will treat such areas. The contaminated wastewater generated by this activity will be contained by the designed spill controls already in place for the waste storage areas. Pumps will be used to empty the wastewater from the containment area into polyethylene-lined closed top drums. These containers will be transferred for proper treatment or disposal at an approved dangerous waste facility. Although this procedure will require more time than the dusting, vacuuming, and wiping procedures outlined above, time requirements are still considered to be minimal for the steam cleaning approach. Wastewaters generated by this procedure are not anticipated to exceed 200 gal.

Following completion of decontamination, sampling will be performed, as described in Section 11.1.4.4, to verify that decontamination is complete.

11.1.4.2.5 Decontamination of Sumps. All collection sumps located at 305-B, including those lining the storage cells on the west side of the unit, the sump along the east side inside wall, and those protecting the exits on the north and south ends, will be decontaminated by steam cleaning. Wastewaters collected in each sump from the implementation of the cleaning process will be pumped into polyethylene-lined, closed top drums and analyzed as to whether or not the wastewater is designated as dangerous waste under WAC 173-303-070. If designated, the wastewater will be disposed of as dangerous waste. If the wastewater is not dangerous waste, the wastewaters will be discharged to the 300 Area process sewer system. The steam cleaning of all the sumps should take minimal time and generate approximately 100 gal of wastewater.

Following completion of decontamination, sampling will be performed, as described in Section 11.1.4.4, to verify that decontamination is complete.

11.1.4.3 Management of Decontamination Waste.

Liquid decontamination wastes will be placed in drums and sampled to determine disposal requirements. Grab samples will be collected from drums using COLIWASA samplers. In order to properly designate the decontamination wastes under WAC 173-303-070, grab samples from each drum will be analyzed for the following:

- Corrosivity using the methods described in SW-846
- Flash point using methods described in SW-846
- Toxicity characteristic using the toxicity characteristic leaching procedure described in SW-846 (includes analysis for metals, volatile organics, and semi-volatile organics including chlorinated pesticides)

1 ▪ Total radioactivity using gross alpha, gross beta, and gamma scans.

2 The results of sample analysis will be used to determine how to dispose of liquid decontamination wastes.
3 The results of volatile and semi-volatile organic analysis of the liquid performed as part of the TCLP will
4 be used to determine the presence of potential listed [WAC 173-303-081(1) and WAC 173-303-082(1)]
5 dangerous waste constituents above background. (Background levels will be determined by analysis of
6 the tap water used for makeup of the decontamination solutions.) Those liquid wastes with listed waste
7 constituents above background will be designated as dangerous wastes. The results of the ignitability,
8 corrosivity, and TCLP analyses will be used to determine if liquid wastes are characteristic dangerous
9 wastes [WAC 173-303-090]. Organic and inorganic analytical results will also be used to determine if
10 liquid wastes are dangerous waste mixtures [WAC 173-303-084]. These results will also be used to
11 determine whether the wastes are LDR [WAC 173-303-140(4) and 40 CFR 268]. The results of the
12 radiological analyses will be used to determine whether any of the liquid wastes are low-level liquid
13 radioactive wastes or radioactive mixed wastes. Depending on designation, liquid decontamination
14 wastes will be disposed of as follows:

15 ▪ Dangerous Manifested and shipped to a permitted dangerous waste TSD facility

16 ▪ Radioactive Mixed Manifested and shipped to a permitted radioactive mixed waste TSD facility

17 ▪ Low-level Radioactive Shall be handled in accordance with the Liquid Effluent Consent Order
18 (No. DE91NM-177) and Milestone M-17 of the Hanford Federal Facility Agreement and Consent
19 Order

20 ▪ Nonregulated Shall be handled in accordance with the Liquid Effluent Consent Order (No. DE91NM-
21 177) and Milestone M-17 of the Hanford Federal Facility Agreement and Consent Order.

22 All non-liquid wastes generated during decontamination of dangerous waste storage areas and equipment
23 (e.g., personnel protective clothing) will be collected in 55-gal open-head drums and managed as
24 dangerous wastes. All non-liquid wastes generated during decontamination of RMW storage areas and
25 equipment will be similarly collected and managed as RMW.

26 **11.1.4.4 Methods for Sampling and Testing to Demonstrate Success of Decontamination.**

27 A series of wipe samples will be collected at various points along floors, walls, ceilings, and equipment of
28 areas at which decontamination activities were conducted. These samples will be analyzed and used to
29 verify whether decontamination procedures were effective. To verify decontamination, a systematic
30 sampling approach designed to identify the presence of "hot spots" will be employed. Samples will be
31 collected on a regular grid with a spacing of 5 ft. This spacing provides an 80% probability of detecting a
32 circular "hot spot" having a radius of 2.5 ft or larger (Gilbert 1987, pp. 119-125). Biased sampling of
33 areas more likely to have been contaminated by unit operations, such as cracks or seams in the concrete
34 floor or any visible stains, or areas of documented spills or releases, will also be performed. If any "hot
35 spots" are detected, additional decontamination will be performed.

36 Decontaminated surfaces will be sampled by collecting wipe samples at each grid point. At each sample
37 location, two samples will be collected within adjacent 1 ft square templates. One sample will be
38 collected using a gauze pad wetted with dilute nitric acid for extraction of inorganic contaminants. The
39 other sample will be collected with a gauze pad wetted with hexane for extraction of organic
40 contaminants.

41 **11.1.4.5 Closure of Containers [I-1d(1)].**

42 At closure, all containers will be removed from the 305-B unit. All dangerous waste residues will be
43 removed from the containment system components. Contaminated equipment, floors, walls, and loading
44 areas will be decontaminated or removed. All decontamination equipment and rinsate will be
45 containerized, tested, and properly disposed. Sampling and analysis will be conducted to ensure that no
46 contamination remains around the storage area and containment system. Additional details for closure
47 and decontamination are provided in Sections 11.1.4.1 through 11.1.4.3.

11.1.4.6 Closure of Tanks [I-1d(2)].

This section is not applicable to the 305-B Storage Unit because wastes are not stored or treated in tanks.

11.1.4.7 Closure of Waste Piles [I-1d(3)].

This section is not applicable to the 305-B Storage Unit because wastes are not stored in waste piles.

11.1.4.8 Closure of Surface Impoundments [I-1d(4)].

This section is not applicable to the 305-B Storage Unit because wastes are not placed in surface impoundments.

11.1.4.9 Closure of Incinerators [I-1d(5)].

This section is not applicable to the 305-B Storage Unit because wastes are not incinerated.

11.1.4.10 Closure of Land Treatment Facilities [I-1d(6)].

This section is not applicable to the 305-B Storage Unit because wastes are not treated in land treatment units.

11.1.5 Closure of Disposal Facilities [I-1e]

This section is not applicable to the 305-B Storage Unit because it will not be closed as a dangerous waste disposal unit.

11.1.6 Closure Schedule [I-1f]

Closure of 305-B is not expected to begin during the term of the Part B permit. When closure begins, the inventory of dangerous and radioactive mixed waste will be removed within 90 days from receipt of the final volume of wastes. All closure activities will be completed within 180 days of receipt of the final volume of waste. The Director of the Washington Department of Ecology will be notified by DOE-RL at least 45 days before the final closure activities are begun. Closure activities are summarized in Table 11-1. A detailed schedule of closure activities is provided in Figure 11-1.

11.1.7 Extension of Closure Time Frame [I-1g]

The inventory of dangerous and radioactive mixed wastes will be removed from the 305-B Storage Facility within 90 days of receipt of the last volume of waste. The closure activities described in this plan will be completed within 180 days of receipt of the final volume of waste. No extension to the time frame for initiation and completion of closure is currently expected to be necessary. Extensions to the time frames for closure would only be necessary if unexpected conditions were encountered during closure of the unit. If it becomes apparent that all wastes cannot be removed within 90 days, Ecology will be so notified at least 30 days prior to expiration of the 90-day period. This notification will demonstrate why more than 90 days is required for removal of the wastes and will demonstrate that steps have been taken to prevent threats to human health and the environment and that the unit is in compliance with applicable permit standards. If it becomes apparent that closure cannot be completed within 180 days after approval of this plan, Ecology will be so notified at least 30 days prior to expiration of the 180-day period. This notification will demonstrate why more than 180 days is required for closure and will demonstrate that steps have been taken to prevent threats to human health and the environment and that the unit is in compliance with applicable permit standards.

11.1.8 Amendments to Closure Plan

If changes are deemed necessary to the approved closure plan, DOE-RL will submit a written request to Ecology for authorizing a change to the approved plan. The written request will include a copy of the amended plan, in accordance with WAC 173-303-610(3)(b).

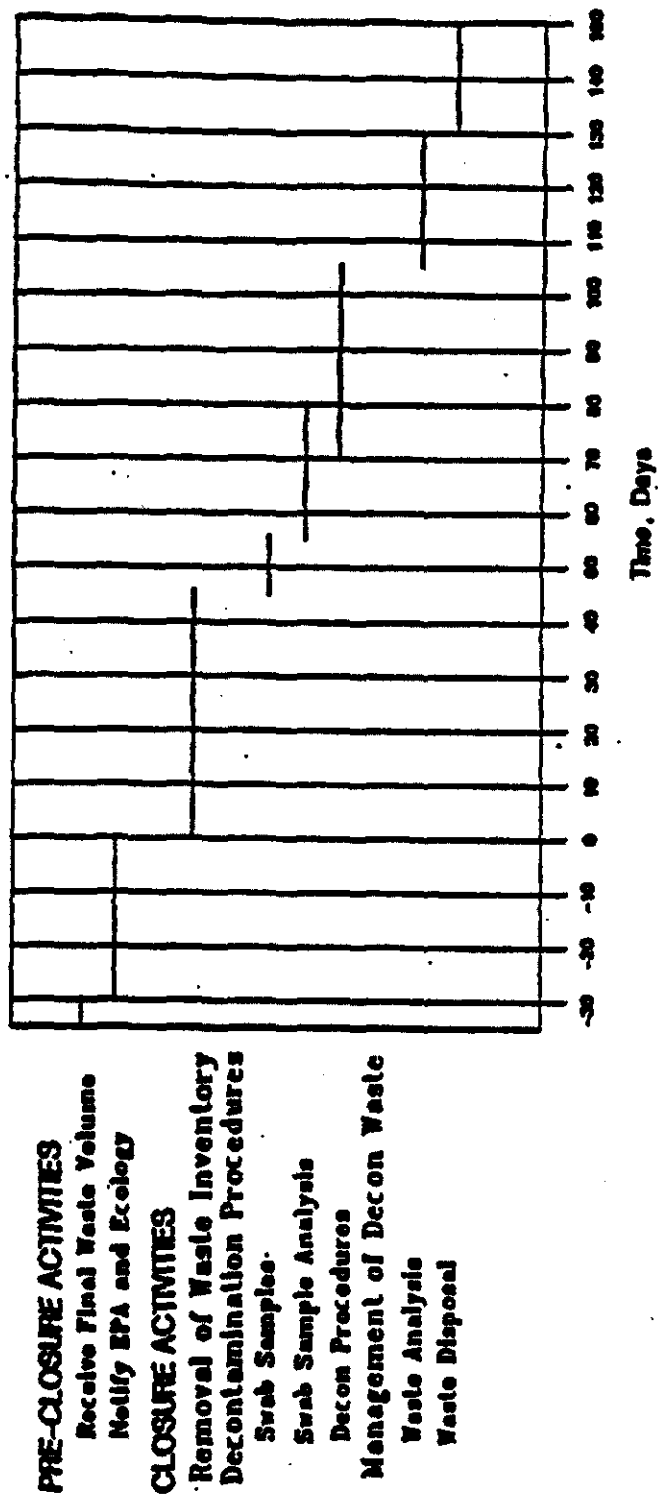
1

Table 11-1. Summary of Closure Activities.

Closure Activity Description	Expected Duration
Receipt of final volume of dangerous and/or mixed waste	N/A
Notify EPA and Ecology that closure will begin	N/A
Remove waste inventory -- package all dangerous and mixed wastes, manifest, and transfer to permitted facility for treatment and/or disposal	45 days
Obtain wipe samples from structural surfaces and equipment to identify areas of contamination and determine level of decontamination needed	10 days
Analyze wipe samples	25 days
Decontaminate structural surfaces and equipment using procedures based on results of wipe sampling	35 days
Obtain wipe samples to verify decontamination	25 days
Analyze verification samples	35 days
Analyze decontamination wastes to determine proper methods of treatment/disposal	25 days
Dispose of decontamination wastes based on results of waste analysis	20 days

2

Figure 11-1. Detailed Schedule of Closure



11.2 CERTIFICATION OF CLOSURE

Within 60 days of completion of the final closure activities described in this plan, a certification of closure will be submitted to Ecology. This certification will indicate that the 305-B Storage Unit has been closed as described in this plan and that the closure performance standards given in Section 11.1 has been met. The certification will be submitted by registered mail and will be signed by DOE-RL and an independent Professional Engineer registered in the State of Washington as described below.

The DOE-RL will self-certify with the following document or a document similar to it:

I, (name), an authorized representative of the U.S. Department of Energy-Richland Operations Office located at the Federal Building, 825 Jadwin Avenue, Richland, Washington, hereby state and certify that the 305-B Storage Facility at the 300 Area, to the best of my knowledge and belief, has been closed in accordance with the attached approved closure plan, and that the closure was completed on (date).

(Signature and date)

The DOE-RL will engage an independent Professional Engineer registered in the State of Washington to inspect closure activities, to verify that closure activities are being conducted according to this plan, and to certify that closure has been performed in accordance with this plan.

The engineer will inspect 305-B at least weekly while closure activities are being performed. During these inspections the engineer will observe closure activities to determine whether they are being performed according to this plan. Inspections will include, but not be limited to:

- Inspection of dangerous and radioactive mixed waste containment structures and systems to determine whether releases of wastes to the environment have occurred
- Verification that the dangerous and radioactive mixed waste inventory has been removed within 90 days of receipt of the last waste shipment
- Inspection of manifests and Operating Record to verify that these wastes were disposed of in compliance with WAC 173-303
- Inspection of decontamination operations to verify that they are being performed using the procedures described in this plan
- Inspections of the Operating Record to verify that samples of liquid decontamination wastes were collected and analyzed using the procedures described in this plan
- Inspection of the Operating Record to verify that decontamination wastes were properly designated in compliance with WAC 173-303-070 and properly disposed.

Inspections by the engineer will be documented in a bound notebook. Notations will include the date and time of the inspection, the areas inspected, the activities inspected, applicable closure plan requirements inspected, status of observed activities with respect to plan requirements, corrective actions required, status of past corrective actions, and name and signature of inspector. This inspection notebook will be made available to Ecology upon request.

Upon completion of closure according to the plan, the DOE-RL will require the engineer to sign the following document or a document similar to it:

I, (name), a certified Professional Engineer, hereby certify, to the best of my knowledge and belief, that I have made visual inspection(s) of the 305-B Storage Unit at the 300 Area and that closure of the aforementioned unit has been performed in accordance with the attached approved closure plan.

(Signature, date, state Professional Engineer license number, business address, and phone number.)

11.3 POSTCLOSURE PLAN [I-2]

This section and subsequent subsections are not applicable because the 305-B Storage Facility is not to be closed as a dangerous waste disposal unit.

11.4 NOTICE IN DEED [I-3]

This section is not applicable because the 305-B Storage Unit is not to be closed as a dangerous waste disposal unit.

11.5 CLOSURE COST ESTIMATE [I-4]

It is DOE-RL's understanding that federal facilities are not required to comply with WAC 173-303-620. However, projections of anticipated costs for closure will be provided in accordance with Condition II.H.1. of the Hanford Facility Permit.

11.6 FINANCIAL ASSURANCE MECHANISM FOR CLOSURE [I-5]

In accordance with 40 CFR 264.140(c) and WAC 173-303, this section is not required for federal facilities. The Hanford Site is a federally owned facility for which the federal government is an operator and this section is therefore not applicable to the 305-B Storage Facility.

11.7 POSTCLOSURE COST ESTIMATE [I-6]

A postclosure cost estimate is not required for the 305-B Storage Facility because it will not be closed as a dangerous waste disposal facility.

11.8 FINANCIAL ASSURANCE MECHANISM FOR POSTCLOSURE CARE [I-7]

Post-closure financial assurance is not required for the 305-B Storage Facility because it will not be closed as a dangerous waste disposal facility.

11.9 LIABILITY REQUIREMENTS [I-8]

In accordance with 40 CFR 264.140(c) and WAC 173-303, this section is not required for federal facilities. The Hanford Site is a federally owned facility for which the federal government is an operator and this section is therefore not applicable to the 305-B Storage Unit.

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13.0 OTHER RELEVANT LAWS [J]

The 305-B Storage Facility was constructed, and is operated, in compliance with applicable laws and regulations. Relevant environmental laws and regulations have been reviewed, necessary notifications have been made, and approvals or permits obtained. Aside from submission of a SEPA checklist, no additional approvals or permits for 305-B Storage Facility requiring action by either Ecology or EPA have been identified.

This chapter provides a summary of the regulatory review performed to assist Ecology in determining that 305-B Storage Facility has met its obligations with respect to other federal or state environmental laws. The major environmental laws evaluated include the following:

- Clean Air Act of 1955, as amended
- Clean Water Act of 1977, as amended
- Coastal Zone Management Act of 1972, as amended
- Endangered Species Act of 1973, as amended
- Fish and Wildlife Coordination Act of 1934, as amended
- National Historic Preservation Act of 1966, as amended
- Wild and Scenic Rivers Act of 1968, as amended
- Toxic Substances Control Act of 1976, as amended

In addition, a summary of other requirements that may apply is provided. Full references for each of these acts are included in Chapter 15.0.

13.1 Clean Air Act

Since the 305-B Storage Facility is an existing unit within an existing facility, permitting under the Clean Air Act does not apply to the unit. The unit has a responsibility to comply with any emissions generated which are regulated under the NESHAP program, including asbestos, benzene, and radionuclides. Except during a catastrophic incident, the potential to emit these materials from the 305-B Storage Facility is minimal. Catastrophic incidents are dealt within the unit contingency plan in Chapter 7. At the Hanford Site, the Tri-County Air Pollution Control Authority oversees site compliance with CAA regulations dealing with hazardous materials; the Washington Department of Health oversees compliance with radionuclide CAA regulations.

13.2 Clean Water Act

Operation of the 305-B Storage Facility will not result in any point source or nonpoint source discharges to surface waters. As such, National Pollutant Discharge Elimination System permits are not required. Spill reporting requirements of the CWA are covered in the unit contingency plan in Chapter 7.

13.3 Coastal Zone Management Act of 1972

The 305-B Storage Facility is not located in a coastal zone or shoreline area as defined by this statute. Therefore, no permits or reviews pursuant to this statute are applicable.

13.4 Endangered Species Act of 1973

The 305-B Storage Facility is located in the 300 Area of the Hanford Site (see Chapter 2.0 for site location information). The site for 305-B Storage Facility cannot be considered an undisturbed area or a major habitat for native plant and animal species. Also, this area constitutes a very small fraction of the Hanford Site and, hence, would not play a significant role in the ecology of the Site. No listed or proposed endangered or threatened species or their habitats are expected to be affected by 305-B Storage Facility activities.

13.5 Fish and Wildlife Coordination Act of 1934

The 305-B Storage Facility will not involve the impoundment, diversion, or other control or modification of any body of water. Therefore, no permits or reviews pursuant to this statute are applicable.

13.6 National Historic Preservation Act of 1966

The 305-B Storage Facility affects no areas that are eligible for nomination to the National Register of Historic Places. All activities at Hanford involving excavation require review for the presence of archaeological resources in accordance with regulations issued pursuant to, or other regulations of, the American Antiquities Preservation Act of 1906; the American Indian Religious Freedom Act of 1978; the Historic Sites, Buildings, and Antiquities Act of 1935; the Archaeological and Historic Preservation Act of 1960; and the Archaeological Resources Protection Act of 1979. No known cultural resource impacts have occurred from 305-B Storage Facility activities.

13.7 Wild and Scenic Rivers Act of 1968

The 305-B Storage Facility does not affect any rivers presently designated under the Wild and Scenic Rivers Act of 1968.

13.8 Toxic Substances Control Act

Wastes containing polychlorinated biphenyls (PCB), which are subject to regulation under the Toxic Substances Control Act (TSCA), are stored in the 305-B Storage Facility. These wastes are stored for periods less than one (1) year before shipment to a disposal facility permitted under TSCA. Storage of PCB wastes in 305-B Storage Facility for periods less than one (1) year will continue to be done in compliance with applicable TSCA regulations in 40 CFR Part 761.

13.9 Other Requirements

The application of insecticides and herbicides on or in the immediate vicinity of the 305-B Storage Facility will be conducted in compliance with the Federal Insecticide, Fungicide, and Rodenticide Act of 1975, TSCA, and the applicable provisions of the Washington State Water Quality Standards, WAC 173-201.

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14.0 CERTIFICATION [K]

The following certification, required by Washington Administrative Code 173-303-810(13), for all applications and reports submitted to Ecology is hereby included:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signed with Revision 1

Co-Operator

William R. Wiley, Director

Pacific Northwest Laboratory

4/1/92

Date

Certified with Revision 1

Signed with Revision 1

Owner/Operator

John D. Wagoner, Manager

U.S. Department of Energy,
Richland Field Office

4/3/92

Date

Certified with Revision 1


14.0 CERTIFICATION [K]

The following certification, required by Washington Administrative Code 173-303-810(13), for all applications and reports submitted to Ecology is hereby included:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.


Co-Operator
William R. Wiley, Director
Pacific Northwest Laboratory

4-1-92
Date


Owner/Operator
John D. Wagoner, Manager
U.S. Department of Energy,
Richland Field Office

4-3-92
Date

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15.0 REFERENCES

- Clean Air Act of 1955*, as amended, 42 U.S.C. 7401 et seq.
- Clean Water Act of 1977*, as amended, 33 U.S.C. 1251 et seq.
- COE, 1969, *Lower Columbia River Standard Project Flood and Probable Maximum Flood*, U.S. Army Corps of Engineers, North Pacific Division, Portland, Oregon.
- Coastal Zone Management Act of 1972*, as amended, 16 U.S.C. 1451 et seq.
- DOT, 1988, *Shippers-General Requirements for Shipments and Packagings*, Title 49, Code of Federal Regulations, Part 173, U.S. Department of Transportation, Washington, DC.
- Ecology, 1984, *Chemical Testing Methods for Complying with the State of Washington Dangerous Waste Regulation*- WDOE 83-13, Washington State Department of Ecology, Olympia, Washington.
- Ecology, 1987, *State of Washington Part B Permit Application Requirements*, Washington State Department of Ecology, Olympia, Washington.
- Ecology, 1991, *Dangerous Waste Regulations*, WAC 173-303, Washington State Department of Ecology, Olympia, Washington.
- Endangered Species Act of 1973*, as amended, 16 U.S.C. 1531 et seq.
- EPA, 1980, *A Method for Determining the Compatibility of Hazardous Wastes*, EPA-600/2-80-076, U.S. Environmental Protection Agency, Cincinnati, Ohio.
- EPA, 1986, *Test Methods for Evaluating Solid Waste*, SW-846, 3rd Edition, U.S. Environmental Protection Agency, Washington, DC.
- EPA, 1988, *Standards Applicable to Owners and Operators of Hazardous Waste Treatment, Storage, and Disposal Facilities*, Title 40, Code of Federal Regulations, Part 264, U.S. Environmental Protection Agency, Washington, DC.
- EPA, 1989, *EPA Regulations on Land Disposal Restrictions*, Title 40, Code of Federal Regulations, Part 268, U.S. Environmental Protection Agency, Washington, DC.
- FEMA, 1982, *FIRM Flood Insurance Rate Map. Benton County. Washington (Unincorporated Areas)*, Community-Panel Number 530237 0470 B, Federal Emergency Management Agency, Washington, DC.
- Fish and Wildlife Coordination Act of 1934*, as amended, 16 U.S.C. 661
- International Conference of Building Officials, 1988, *Uniform Fire Code*, International Conference of Building Officials and Western Fire Chiefs Association, Whittier, California.
- National Historic Preservation Act of 1966*, as amended, 16 U.S.C. 470 et seq.
- Resource Conservation and Recovery Act of 1976*, as amended, 42 U.S.C. 6901 et seq.
- Toxic Substances Control Act*, 1976, 15 U.S.C. 2601 et seq.
- Washington Hazardous Waste Management Act*, Title 70, Chapter 105 as amended, Revised Code of Washington, Olympia, Washington.
- Wild and Scenic Rivers Act of 1968*, as amended, 16 U.S.C. 1271 et seq.

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APPENDICES

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APPENDIX 4B

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MANUFACTURER'S INFORMATION

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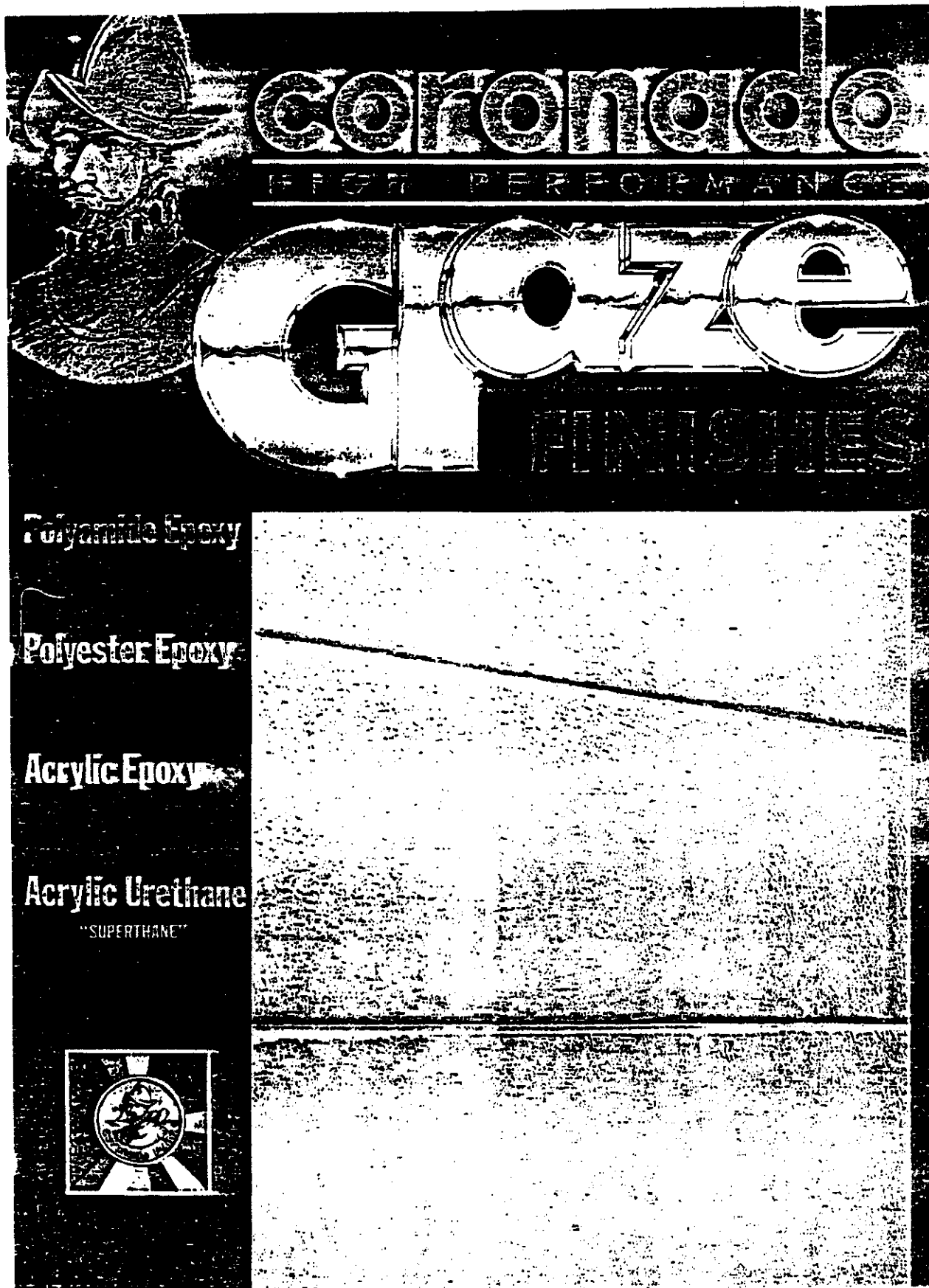
APPENDIX 4B

2

MANUFACTURER'S INFORMATION

3

Plate 4B-1. Manufacturer's Information on Coronado Polyamide Epoxies




Coronado
HIGH PERFORMANCE
Gaze
FINISHES

Polyamide Epoxy

Polyester Epoxy

Acrylic Epoxy

Acrylic Urethane
"SUPERTHANE"



The advertisement features a large, high-contrast black and white image of a textured surface, possibly a wall or ceiling, with a diagonal line running across it. The text is arranged in a vertical column on the left side of the image. The main title 'Coronado' is in a large, bold, serif font, with 'HIGH PERFORMANCE' in a smaller, sans-serif font below it. The word 'Gaze' is in a large, bold, serif font, and 'FINISHES' is in a smaller, sans-serif font below it. The product names are listed in a bold, sans-serif font. The logo at the bottom left is a circular emblem featuring a knight's helmet.

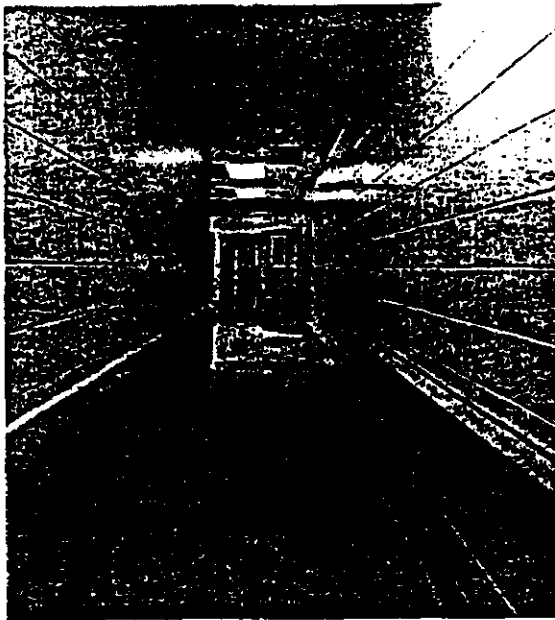
POLYAMIDE EPOXY

FEATURES

- SUPERIOR CHEMICAL RESISTANCE
- FULL COLOR RANGE
- GLOSS & SATIN FINISHES
- HI-BUILD, & PRIMERS

Uses-

Bakeries	Schools
Bottling plants	Steam power plants
Concrete floors	Swimming pools
Dairies	
Food processing	
Hospitals	
Laboratories	
Paper mills	
Plating rooms	
Restaurants	
Sewage treatment plants	



Provides high impact and abrasion resistance due to its thermosetting characteristics by which it bonds itself to the surface. Its non-toxic film is unaffected by corrosive atmospheres, salt and fresh water and strong cleaning solutions. This highly glazed pigmented coating resists peeling, chipping, cracking and undercutting while sealing mortar joints and surfaces from mold, fungi and bacteria. The dense, tough, waterproof film is available in a wide range of colors, in both gloss and satin finishes or in regular hi-build versions.

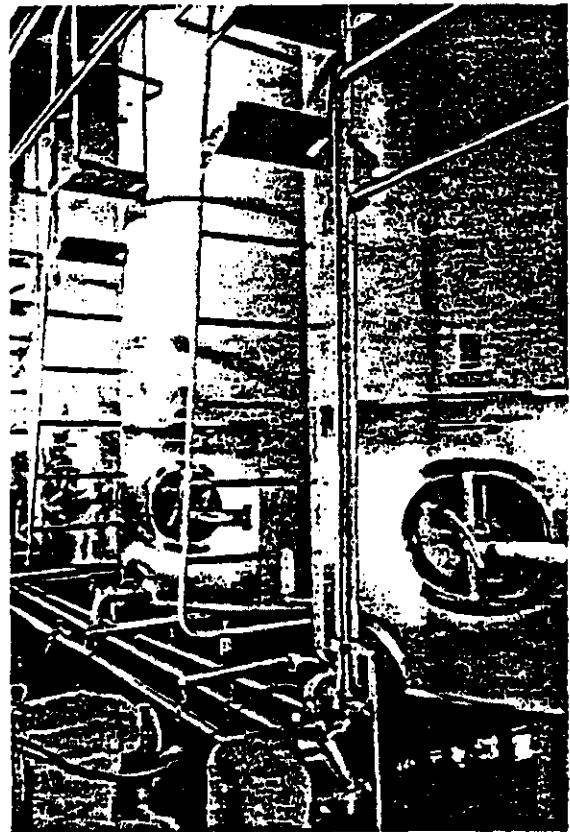
POLYESTER EPOXY

FEATURES

- HIGH GLOSS
- INTERIOR-EXTERIOR
- WITHSTANDS REPEATED CLEANING
- LOW COLOR
- FULL COLOR RANGE

Uses-

Corridors	Schools
Kitchens	Dairies
Hospitals	Food Processing



Provides a beautiful and durable, high performance gloss coating in a wide range of colors and clear. It offers excellent resistance to stains, soaps, detergents, and discoloration from ammonia. It creates a highly abrasion resistant finish which permits easy removal of dirt and scuff marks. The adhesion and gloss retention properties of this coating assures good results on exterior exposure. The film, which is formed by chemical action, resists chipping, peeling and crazing. It provides excellent resistance to mildew and fungus growth.

ACRYLIC EPOXY

FEATURES

- EXCELLENT GLOSS RETENTION
- EXCELLENT COLOR RETENTION
- LOW ODOR
- WATER THINNED
- GOOD CHALK RESISTANCE
- COMPLIES WITH CARB* AIR QUALITY REGULATIONS

Uses-

Hospitals
Schools
Dairies
Food processing
Kitchens
Corridors

Restaurants
Bottling Plants
Laboratories



This tie-like coating offers unusual resistance to staining, discoloration, wear and abuse. Its ability to seal all mortar joints aids in the maintenance of sanitary conditions in hospitals, schools, and other public buildings. The positive protection against most acids and alkalis permits its application in dairies, bakeries, bottling and food processing plants. The superior hardness and abrasion resistance of this product enables it to withstand the scuffing encountered when using commercial detergents.

*California Air Resources Board

SUPERTHANE ACRYLIC URETHANE

FEATURES

- EXCELLENT GLOSS RETENTION
- EXCELLENT CHEMICAL RESISTANCE
- EXCELLENT COLOR RETENTION
- EXCELLENT ABRASION RESISTANCE
- FULL COLOR RANGE

Uses-

Chemical plants
Water towers
Trucks

Machinery
Metal buildings
Outdoor signs



This product embodies the latest technology in the formulation of a superior two component urethane which will yield the ultimate in a tough, abrasion, and chemical resistant coating. No other coating provides this unique combination of gloss and chemical resistance. This high performance coating will equal the results obtained from the best baking system and is available in a wide range of colors and clear. The mar and stain resistance of this system, plus its dense glazed film assures the successful removal of graffiti of any type.

TECHNICAL DATA	PRIMERS						
	85-1 White	138-1 White	827-1 White	101-147	316-200		
GENERIC TYPE	Polyester Epoxy	Polyamide Epoxy	Acrylic Epoxy	Aliphatic Acrylic Urethane	Polyamide Epoxy	Vinyl-Butyral	Epoxy-Polyamide
PIGMENT TYPE	Titanium Dioxide	Titanium Dioxide	Titanium Dioxide	Titanium Dioxide	Titanium Dioxide & Zn-Plex	Zinc Chromate	Titanium Dioxide, Silica
SOLIDS - WEIGHT CONTENT - VOLUME	72% 66%	66.0% 51.3%	55.0% 41.5%	62.2% 47.8%	52.1% 38.5%	15% 11%	75% 56%
THEORETICAL COVERAGE AT RECOMMENDED FILM THICKNESS	520 Sq. Ft.	400 Sq. Ft.	320 Sq. Ft.	381 Sq. Ft.	375 Sq. Ft.	840 Sq. Ft.	Varies with Roughness
FILM THICKNESS - WET - DRY	3.1 2.0	4.0 2.0	5.0 2.0	4.4 2.0	4.4 1.5	3.0 - 4.0 0.3 - 0.5	Varies with Roughness
DRY TIME - TO TOUCH - RECOAT - FULL CURE	1 Hour 8 Hours 10 Days	1 Hour 2 - 4 Hours 7 - 14 Days	2 Hours Overnight 3 - 10 Days	1 Hour 4 Hours 7 Days	1 Hour 2 - 4 Hours 7 Days	15 Min. 30 Min. 7 Days	30 Min. 3 - 4 hours 7 - 10 Days
HEAT RESISTANCE - WET - DRY	- 250° F	150° F 300° F	150° F 250° F	125° F 200° F	150° F 300° F	140° F 200° F	200° F 150° F
FLASH POINT (Seta)	80° F	80° F	None at 200° F	80° F	80° F	53° F	89° F
DRIES BY	Chemical Cure	Chemical Cure	Chemical Cure	Chemical Cure	Chemical Cure	Chemical Cure	Chemical Cure
60° SPECULAR GLOSS	80 - 90%	90 - 90%	90 - 95%	85 - 90%	0 - 5%		Flat
VISCOSITY (Krebs)	75 - 80 KU	80 - 90 KU	90 - 95 KU	70 - 75 KU	60 - 68 KU	12 - 14 Sec No. 4 Ford	110 - 120 KU
SURFACE TEMPERATURE - MIN. AT APPLICATION - MAX.	50° F 95° F	60° F 90° F	50° F 95° F	50° F 90° F	60° F 90° F	60° F 90° F	50° F (10° C) 95° F (35° C)
THINNER	45-200	45-187	Water	45-202	45-187	Isopropyl Alcohol	45-187
REDUCTION - BRUSH - ROLLER - SPRAY	None None 8 - 1 Max	10 - 1 Max 10 - 1 Max 5 - 1 Max	None None As needed	None None 8 - 1 Max	10 - 1 Max 10 - 1 Max 5 - 1 Max	None None 10 - 1 Max	10 - 1 Max None None
CLEAN UP THINNER	45-200	45-187	Soap & Water	45-202	45-187	Isopropyl Alcohol	45-187
SHELF LIFE	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year	1 Year
MIXING RATIO	1 - 1	1 - 1	1 - 1	3 - 1	1 - 1	4 - 1	1 - 1
INDUCTION TIME	45 Min.	30 Min.	15 Min.	15 Min.	30 Min.	15 Min.	30 Min.
POT LIFE @ 70° F	8 Hours	8 Hours	12 Hours	6 Hours	8 Hours	8 Hours	8 Hours
WEIGHT PER GALLON	11.7 lbs.	11.4 lbs.	10.5 lbs.	10.22 lbs.	9.8 lbs.	8.7 lbs.	13.0 lbs.

SURFACE PREPARATION

Surface must be clean and dry, free from grease, oil, rust, mill scale, and other foreign matter. Remove heavy edges and mortar spatter on concrete. Fill big voids. Brush new plaster to remove dry salt deposits. Spackle cracks in plaster, drywall and dense masonry. Commercial sandblast is recommended for steel.

PREVIOUSLY PAINTED SURFACES

Roughen surface. Check old finish for lifting. If lifting occurs, all old paint must be removed, or use a barrier coat.

PRIMING NEW PLASTER AND DRYWALL

Apply one coat of No. 40-11 Primer Sealer according to label instructions. Allow to dry overnight before recoating.

NEW WOOD

Apply one coat of No. 78-11 Latex Undercoat according to label instructions. Allow to dry overnight before recoating.

BRICK

Apply one coat of No. 78-11 Latex Undercoat according to label instructions. Allow to dry overnight before recoating.

FILLING CONCRETE BLOCK

The basic function of this operation is to fill surface imperfections. It is not intended for surface buildup where it could prevent direct contact of the glaze coating with the substrate.

NOTE

For conditions or applications other than those recommended, contact a Coronado Paint representative to determine suitability.

The information contained herein is based on tests and reports considered reliable but is presented without guarantee or responsibility as to the applicability or correctness of this information or the suitability of our products whether used singly or in combination with other products. The products referred to above are sold without warranty, express or implied.



coronado paint company

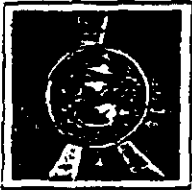
EDGEWATER, FLORIDA, U.S.A.



INDUSTRIAL COATINGS



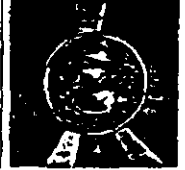
CORROSION EXPOSURE CHART



coronado paint company CORROSION EXPOSURE CHART

DEFINITION OF RATINGS

~~REDACTED~~
~~REDACTED~~
~~REDACTED~~

		coronado paint company		CORROSION EXPOSURE CHART																
				DEFINITION OF RATINGS																
				<div>WATER</div> <div>ORGANIC</div> <div>FRESH SALT FRESH 150 F. SALT 150 F. ACETIC 10% ACETIC 10% BENZOIC BORIC CITRIC 10% LACTIC 10% MALEIC 25% OLEIC 100% PICRIC 10% HYDROCHLORIC 10% HYDROCHLORIC 10%</div>																
ENAMELS	MOISTURE BOND ENAMEL MODIFIED ALKYD SERIES 47	Splash & Spill, short interval	●●★★																	
		Direct exposure for extended periods																		
	RUST SCAT URETHANE ALKYD SERIES M31	Splash & Spill, short interval	●●★★																	
		Direct exposure for extended periods																		
	EPOXY-ESTER SERIES 137	Splash & Spill, short interval	●●★★						★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★	★★★★★
		Direct exposure for extended periods																		
QUICK DRY ENAMEL CHAIN STOP—ALKYD SERIES 139	Splash & Spill, short interval	★★□□						□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□		
	Direct exposure for extended periods																			
ACRYLIC ENAMEL ACRYLIC ALKYD SERIES 985	Splash & Spill, short interval	★★★★						□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□		
	Direct exposure for extended periods																			
EMULSIONS	MASONRY COATING EMULSION—ACRYLIC SERIES M10	Splash & Spill, short interval	●●□□					□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□		
		Direct exposure for extended periods																		
ACRYLIC ENAMEL ACRYLIC EMULSION SERIES M80	Splash & Spill, short interval	●●□□						□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□	□□□□□□□□		
	Direct exposure for extended periods																			
CHEM. RESIST.	CHLORINATED RUBBER SERIES 227	Splash & Spill, short interval	●●★★★					●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●		
		Direct exposure for extended periods	●●□□															★★★★		
VINYL COATING (GENERIC TYPE)	Splash & Spill, short interval	●●★★★						●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●		
	Direct exposure for extended periods	●●□□																★★★		
2-COMPONENT	POLYESTER—EPOXY SERIES 85	Splash & Spill, short interval	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●		
		Direct exposure for extended periods	★★																	
	POLYAMIDE—EPOXY SERIES 101	Splash & Spill, short interval	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●		
		Direct exposure for extended periods	●●★★★	★	—	★	★	★	★	★	★	★	★	★	★	★	★	★		
	SUPERTHANE ACRYLIC URETHANE SERIES 827	Splash & Spill, short interval	●●●●●	□					●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●		
		Direct exposure for extended periods	●●●●●						□●●●●	★								★●●●●		
	COAL TAR EPOXY POLYAMIDE CURED 61-2	Splash & Spill, short interval	●●●●●						●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●		
		Direct exposure for extended periods	●●●●●						□●●●●	★									★	
	ACRYLIC EPOXY SERIES 138	Splash & Spill, short interval	●●●★★						●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	●●●●●	
		Direct exposure for extended periods	★★□□□																	
EPOXY MASTIC 113-111	Splash & Spill, short interval	●●●●●	★	□	●●●●●												★●●●●	●●●●●		
	Direct exposure for extended periods	●●●●●	□					□□□□□								★				

COATINGS MUST BE FULLY CURED TO MEET THESE EXPOSURES.

Note: This chart covers finish coats only. Primers and undercoats depend on finish coats selected as well as on substrate to be finished, its condition, and the degree of surface preparation possible.

GASES			SOLVENTS			FATS OILS			ACID SALTS			ALKALINE SALTS			MISC.	WEATHERING*															
ACETONE	ALCOHOL	BENZENE	CARBON TETRACHLORIDE	ETHYLENE CHLORIDE	GASOLINE	KETONES	TOLUENE	TRICHLOROETHYLENE	XYLENE	ANIMAL	VEGETABLE	MINERAL	AMMONIUM NITRATE 10%	COPPER SULPHATE	FERRIC NITRATE	ZINC SULPHATE	BARIUM SULPHATE	SODIUM SULPHIDE	SODIUM BICARBONATE	SODIUM CARBONATE	TRISODIUM PHOSPHATE	FORMALDEHYDE 10%	PHENOL 5%	REFINERY CRUDES	HYDRAULIC OIL	COASTAL	INLAND INDUSTRIAL	COMMERCIAL	PRODUCT SERIES		
			★					□	□	★	★	★	□	□	★	★	★	□	□				★	★	●				47	MOISTURE BOND ENAMEL MODIFIED ALKYD SERIES 47	
			★					□	□	★	★	★	□	□	★	★	★	□	□				★	★	●				M31	RUST SCAT URETHANE ALKYD SERIES M31	
★	□	□	□	□	★	□	□	□	□	★	★	★	□	●	●	●	●	●	●	★	●	□	★	□	★	★	●		137	EPOXY-ESTER SERIES 137	
			★					□	□	★	★	★	□	□	★	★	★	□	□				★	★	●				139	QUICK DRY ENAMEL CHAIN STOP—ALKYD SERIES 139	
□			★					□	★	★	★	★	★	★	★	★	★	★	★				★	●	●				985	ACRYLIC ENAMEL ACRYLIC ALKYD SERIES 985	
			★					□	□	★	★	★	□	□	★	★	★	□	□				★	●	●				M10	MASONRY COATIN EMULSION—ACRY. SERIES M10	
			★					□	□	★	★	★	□	□	★	★	★	□	□				★	●	●				M80	ACRYLIC ENAMEL ACRYLIC EMULSION SERIES M80	
□		□						□	□	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		227	CHLORINATED RUBBER SERIES 227	
★			★					★	★	★	●	●	●	●	●	●	●	●	●	●	●	●	★	●	●	●			358	VINYL COATING (GENERIC TYPE)	
●	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□	□		85	POLYESTER—EPOXY SERIES 85	
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		101	POLYAMIDE—EPOXY SERIES 101	
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		827	SUPERTHANE ACRYLIC URETHANE SERIES 827	
●	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★		61	COAL TAR EPOXY POLYAMIDE CURED 61-2	
★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★		138	ACRYLIC EPOXY SERIES 138	
●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●		113-111	EPOXY MASTIC 113-111	
□	□	★	★	□	★	□	★	●	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★	★				

nd on finish coats selected as
surface preparation possible.

*Resistance to fading and loss of gloss, not necessarily related
to any change in chemical resistance.

Rev. 10/87
IMA 2

This Corrosion Chart is not intended to completely cover the field of chemicals found in manufacturing operations, but rather to cover the most common and most often encountered as problem chemicals.

A detailed analysis of your plant may be necessary to determine by department the chemical and environmental factors which must be used to govern the selection of the proper coating systems for your particular plant and environment.

In addition to chemical exposure, the problem of impact, abrasion, moisture, atmospheric heat and cold exposure must be also included before recommendations can be finalized.

Where chemical corrosion is a threat, surface preparation becomes even more critical. Under less demanding conditions, without this, even properly qualified coatings have little chance to deliver satisfactory service.

TESTING PROCEDURE COMMENT

The test reportings on this chart were run at normal ambient temperature exposures. Where complete immersion in very aggressive chemicals at temperatures higher than room temperatures is expected, additional submersion tests under actual operating conditions must be performed.

SPECIALIZATION IS REQUIRED IN THE FIELD OF HEAVY DUTY COATINGS

Paint technology is a dynamic moving force. Each year the paint industry develops new abilities and methods in utilizing new raw materials and adds refinements to already existing formulations. Each individual coating, by the very nature of its formulation, has certain attributes and characteristics which enable it to perform well within a given range of conditions on specified surfaces.

To meet the great variety of requirements for industry, water treatment plants, water tanks, sewage treatment, chemical processing, food processing, etc., specialization is a real necessity, not a luxury. Coatings which give excellent results on metal, frequently can not withstand the attack of lime found in masonry. Coatings which perform well in a dry atmosphere do not necessarily have the ability to withstand conditions of extreme moisture and condensation. Most frequently, coatings that provide optimum protection on interior surfaces, react unfavorably when exposed to direct sunlight. Coatings which perform exceptionally well when in contact with ordinary water, break down when they are submerged in sewage. Those that have good resistance to caustics may have poor resistance to acids.

Out of the sometimes bewildering array of coating types available . . . including alkyds, modified alkyds, polyamide epoxies, coal tars, asphaltic chlorinated rubbers, amine epoxies, vinyls, etc. . . it is impossible to select one of these coatings that could be used under all or even most of the situations and conditions found in industry. For this reason, we have Maintenance Coatings Engineers serve our customers. They will design definitive specifications to meet any of a series of problems, and their knowledge and experience equips them to select specific coatings to be used to fit any set of existing operating conditions.

INDUSTRIAL COATINGS

- **Complete Service**
- **Complete Protection**
- **Complete Product Line**
- **Complete Color System**
- **Complete Technical Data**



coronado paint company

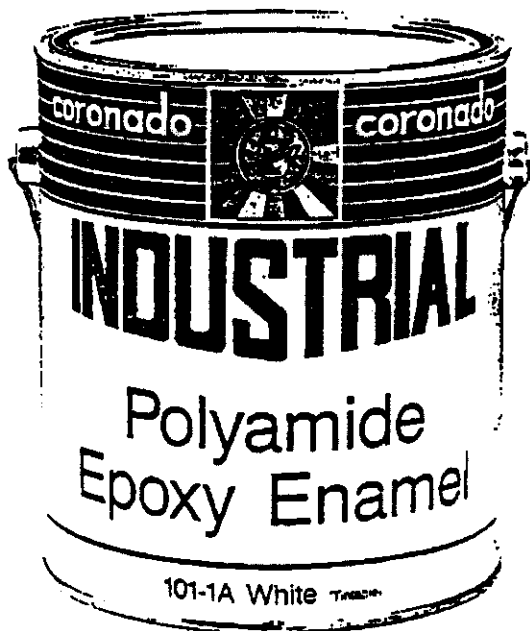
the coronado story

Coronado Paint Company is a "people" company, with more than 120 employees working together to service over 300 dealers in 35 states.

With daily production capabilities of 20,000 gallons of industrial and trade sales paint, Coronado Paint Company boasts the most modern paint manufacturing facilities in the South. Production from the existing facilities is being increased by 50 percent to 30,000 gallons a day. Additionally, land is available to more than double the size of the present facility when needed.

From its well-staffed new laboratory, which is equipped with the most sophisticated technological testing equipment available, Coronado exercises rigid quality control over every product it manufactures. In addition, an ongoing research and development program is constantly monitored and updated, making Coronado Paint Company a leader in the paint industry — not a follower.

Coronado Paint Company stays abreast of present and future technology and production methods in order to meet the varied coating requirements of our customers. As a result, Coronado Paint's product line ranges from simple latex wall finishes to exotic coatings such as polyamide epoxy, aliphatic urethane, chlorinated rubber, and zinc-rich coatings. Products such as these, coating everything from submarines to missiles, are generally available to the distributor upon request.



Coronado maintains inventories of many Federal Specs which are available to its distributors in quantities as low as 100 gallons.

Coronado's greatest asset is flexibility. Throughout its impressive growth, individualized service has always been an essential part of the Coronado Story. The people at Coronado know that small batches of paint are every bit as important to the dealer as large batches. As a result of this, it is not uncommon to see a small batch of a special product or color in the production schedule on any given day.

Additional flexibility comes from a fleet of over 25 tractor-trailers (refrigerated and heated, all with side doors and some with power tailgates). These trucks appear at least once a week in 30 states. This is a benefit not enjoyed by most other paint manufacturers.

Throughout its history, Coronado Paint Company has been guided by a belief that the foundation of the paint industry is the independent paint dealer. With this in mind, it sells only to those who are licensed for wholesale or retail sale of paint.

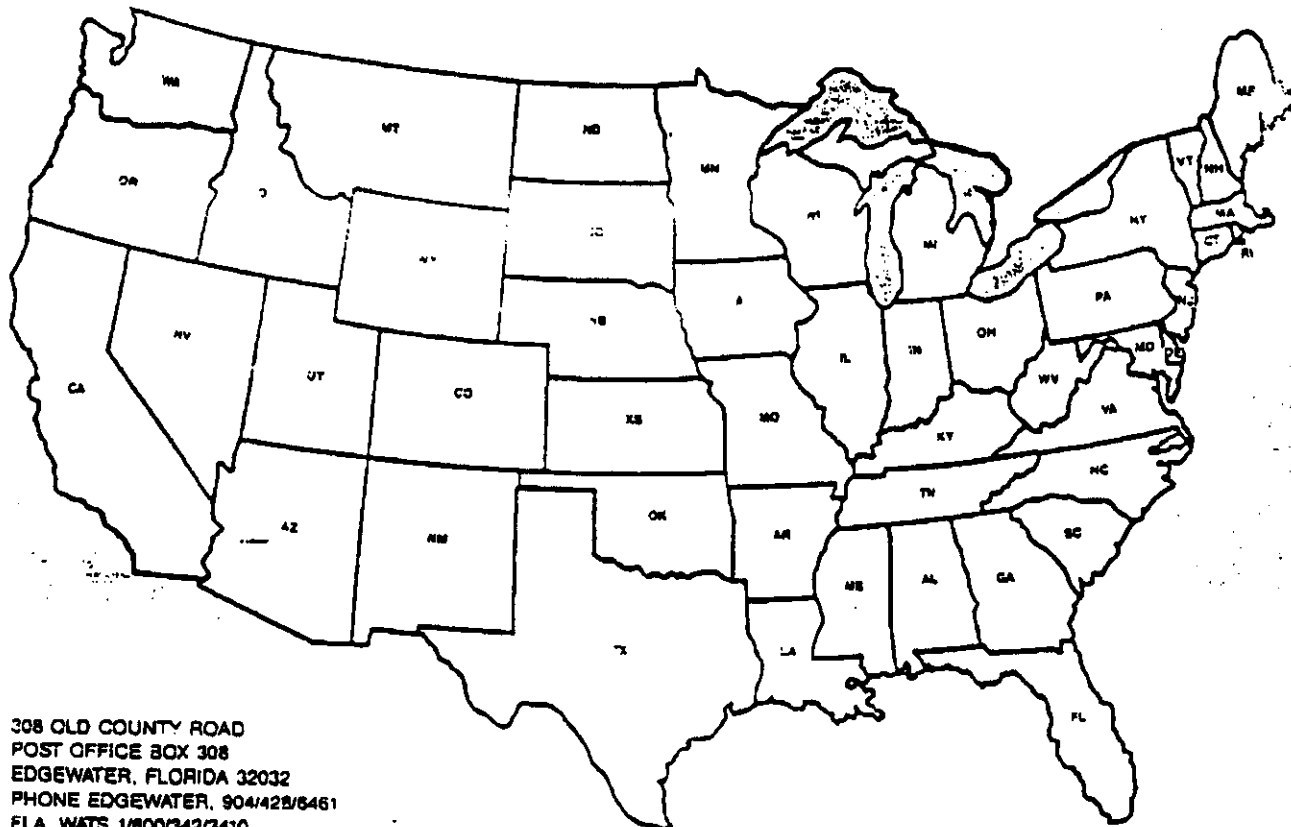
Coronado Paint Company also realizes that if its distributors are to grow and prosper in their individual marketplaces, they must have top quality products—at competitive prices. With that in mind, Coronado offers four complete paint lines. The quality of each is second to none, and each line was designed for a particular segment of the market.

Coronado also offers a complete line of industrial maintenance coatings designed to meet the special needs of industry. This fast growing and steady market is increasingly serviced by independent paint dealers and Coronado offers a complete program of technical training, brochures and specifications to support the dealer in expanding his sales to local industrial maintenance customers.

PRODUCT INDEX

PRODUCT NUMBER	PAGE	PRODUCT NUMBER	PAGE	PRODUCT NUMBER	PAGE
M10 ACRYLIC FLAT	10	100-10 PRIMER	5	395-10 CLEAR URETHANE	11
M13 URETHANE ALKYD SEMI-GLOSS	5	100-10 PRIMER	5	320-147 PRIMER	5
M31 URETHANE ALKYD GLCSS	6	100-10 PRIMER	5	320-211 PRIMER	5
33-111 PRIMER	5	100-10 PRIMER	5	827 SUPERTHANE	9
M35-111 PRIMER	4	101-147 PRIMER	4	882-1 TEXCOTE	10
M35-147 PRIMER	4	101-153 PRIMER	4	885-211 Q.O. METAL PRIMER	5
M35-152 PRIMER	5	103-1 HIGH HIDE DRYFALL	7	903 FAST FINISH	7
M35-153 PRIMER	4	105-1 FLAT DRYFALL	7	925-147 PRIMER	5
M36-11 PRIMER	4	107-1 EGGSHELL DRYFALL	7	925-211 PRIMER	5
45-184 THINNER	15	111-111 EPOXY	4	946-11 LATEX BLOCK FILLER	15
45-187 THINNER	15	113-111 EPOXY MASTIC	9	985 SOLVENT ACRYLIC ENAMEL	11
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45-203 THINNER	15	139 QUICK DRY	7	FILM THICKNESS CHART	20
47-1 MOISTURE BOND	6	153 ELECTROSTATIC	7	COST PER SQUARE FOOT CHART	21
55-145 ALUMINUM	14	206-2 HI-HEAT BLACK	13	GENERIC COMPARISON CHART	22
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93-300 SUR-PREP II	12	227-11 PRIMER	4		
93-400 SUR-PREP IV	12	227-211 HI-BUILD	4		
93-500 SUR-PREP I	12	316-200 VINYL WASH PRIMER	5		
93-600 SUR-PREP II	12	393-10 CLEAR URETHANE	11		

NOTICE: These products are for industrial use only and are not intended or suitable for use in or around household or dwelling. These coatings are formulated for application by professional applicators.



308 OLD COUNTY ROAD
POST OFFICE BOX 308
EDGEWATER, FLORIDA 32032
PHONE EDGEWATER, 904/428/6461
FLA. WATS 1/800/342/3410
NAT. WATS 1/800/674/4193

EPOXIES

85 SERIES POLYESTER EPOXY

USDA ACCEPTANCE PENDING

This solid glass high gloss finish offers excellent stain resistance, unaffected by strong cleaners, will not turn yellow from free ammonia. Extreme impact resistance. Good color and gloss retention. Offers a full range of colors and clear for use on exterior and interior surfaces such as metal or masonry structures, wood, fiberglass or metal boats. Exhibits very good resistance to chemicals, water and weathering. Does not have good abrasion resistance when used in high traffic areas.

Bases: 85-1 Tintable White
85-10 Clear Finish

GENERIC TYPE	85-1 WHITE	FERROUS	NON-FERROUS
		*101-147 * RED	316-200 GREEN
POLYESTER EPOXY		POLYAMIDE EPOXY	VINYL BUTYRAL
PIGMENT TYPE	TITANIUM DIOXIDE	TITANIUM ZI-PLEX	ZINC CHROMATE
VOLUME SOLIDS	66%	35.5%	11%
SPREAD RATE PER GALLON	520 SQ. FT.	375 SQ. FT.	350 SQ. FT.
FILM THICKNESS—WET	3.1 MILS	4.3 MILS	4.5 MILS
—DRY	2.0 MILS	1.5 MILS	0.5 MILS
DRY TIME—TO TOUCH	1 HOUR	1 HOUR	15 MIN.
—TO RECOAT	8 HOURS	2-4 HOURS	30 MIN.
SOLVENT	XYLENE	45-187	ISOPROPANOL
POT LIFE	8 HOURS	8 HOURS	8 HOURS
MIXING RATIO	1-1	1-1	4-1
ANALYSIS:	PIGMENT: 26.6% Titanium Dioxide II 80.0% Calcium Carbonate 16.7% Silica 3.3% 100.0%	VEHICLE: 73.4% Polyester Epoxy Solvent & Additives	64.6% 35.4% 100.0%

101 SERIES POLYAMIDE EPOXY

Designed to provide tough, durable protection on interior or exterior surfaces. Offers impact or abrasion resistance - outstanding adhesion chemical and acid resistance - resists strong cleaning solutions, fresh or salt water - does not support mold or fungi. For use on metal buildings, tanks, machinery, tank cars where high degree of chemical resistance is required. Gives ceramic like glaze to concrete block, masonry or plaster. Available in gloss, satin or hi-build gloss by selection of proper "B" catalyst. This product can be force cured, follow this heat schedule.

* Hour at 120°F (49°C)
20 Minutes at 150°F (66°C)
10 Minutes at 200°F (93°C)
5 Minutes at 300°F (149°C)

Bases: 101-1A Tintable White
101-2A Black
101-38A Clear Base
101-38A Deep Base

GENERIC TYPE	GLOSS *101-1A 101-250B	SEMI-GLOSS *101-1A 101-251B	HI-BUILD *101-1A *101-252B
		POLYAMIDE EPOXY	POLYAMIDE EPOXY
POLYAMIDE EPOXY		POLYAMIDE EPOXY	POLYAMIDE EPOXY
PIGMENT TYPE	TITANIUM DIOXIDE	TITANIUM DIOXIDE	TITANIUM DIOXIDE
VOLUME SOLIDS	51.3%	56.5%	60.2%
SPREAD RATE PER GALLON	400 SQ. FT.	440 SQ. FT.	140 SQ. FT.
FILM THICKNESS—WET	4.0 MILS	3.6 MILS	11.7 MILS
—DRY	2.0 MILS	2.0 MILS	7.0 MILS
DRY TIME—TO TOUCH	1 HOUR	1 HOUR	1 HOUR
—TO RECOAT	2-4 HOURS	2-4 HOURS	4-8 HOURS
SOLVENT	45-187	45-187	45-187
POT LIFE	8 HOURS	8 HOURS	8 HOURS
MIXING RATIO	1-1	1-1	1-1
ANALYSIS:	PIGMENT: 28.6% 101-1A & Titanium Dioxide 79.2% 101-250B Silicates 20.8% 100.0%	VEHICLE: 71.2% Epoxy Resin Polyamide Resin Urea Resin Solvents and Additives	30.4% 20.7% 1% 48.8% 100.0%

138 SERIES ACRYLIC EPOXY

Excellent color and gloss retention for interior or exterior use, water thinned, low odor and complies with C.A.R.B. regulations. For use on metal, masonry and wood. Offers exceptional resistance to mar, abrasion, water, alkali, acids and chemicals. Use on metal building, machinery, halls, restrooms, hospitals, schools, food processing and water and waste treatment plants.

Bases: 138-1 Tintable White
138-33 Tint Base
138-34 Deep Base
138-37 Clear Base

GENERIC TYPE	*138-1 WHITE	FERROUS	NON-FERROUS
		*101-147 * RED	316-200 GREEN
ACRYLIC EPOXY		POLYAMIDE EPOXY	VINYL BUTYRAL
PIGMENT TYPE	TITANIUM DIOXIDE	TITANIUM ZI-PLEX	ZINC CHROMATE
VOLUME SOLIDS	41.5%	35.5%	11.0%
SPREAD RATE PER GALLON	480 SQ. FT.	375 SQ. FT.	350 SQ. FT.
FILM THICKNESS—WET	3.8 MILS	4.3 MILS	4.5 MILS
—DRY	1.5 MILS	1.5 MILS	0.5 MILS
DRY TIME—TO TOUCH	2 HOURS	1 HOUR	15 MIN.
—TO RECOAT	OVERNIGHT	2-4 HOURS	30 MIN.
SOLVENT	WATER	45-187	ISOPROPANOL
POT LIFE	12 HOURS	8 HOURS	8 HOURS
MIXING RATIO	1-1	1-1	4-1
ANALYSIS:	PIGMENT: 25.2% Titanium Dioxide 90.5% Silicates 9.5% 100.0%	VEHICLE: 74.8% Acrylic Resin Epoxy Resin Water & Additives	29.8% 8.7% 61.5% 100.0%

* LEAD & CHROMATE FREE PRIMERS

MISCELLANEOUS

55-145 CHROME BRITE ALUMINUM		55-145 ALUMINUM
USDA ACCEPTANCE PENDING		
<p>This chrome Brite Aluminum paint is manufactured of the finest quality raw materials available to the paint industry. It is designed to meet the stringent durability requirements of the industrial maintenance market while retaining the qualities so necessary to the amateur painter...ease of application, excellent adhesion with minimum surface preparation, easy clean up, excellent leveling and uniform gloss.</p>	GENERIC TYPE	LINSEED OIL-ALKYD
	PIGMENT TYPE	ALUMINUM
	VOLUME SOLIDS	42.4%
	SPREAD RATE PER GALLON	320 SQ. FT.
	FILM THICKNESS—WET	50 MILS
	—DRY	2.0 MILS
	DRY TIME—TO TOUCH	2 HOURS
	—TO RECOAT	24 HOURS
	SOLVENT	MINERAL SPIRITS
	VISCOSITY #4 FORD CUP	19-25 SEC.
ANALYSIS UPON REQUEST		
946-11 LATEX BLOCK FILLER		946-11 WHITE
USDA ACCEPTED		
<p>Designed to fill pores, indentations or surface imperfections of concrete block or other porous masonry interior surfaces, prior to application of the finish coat. May be used under oil based latex, conventional enamels, catalyzed epoxies or chlorinated rubber. Do not use in high moisture areas or below grade without squeegeeing excess material off of the surface exposing at least 50% of the substrate. This will allow the coating the necessary adhesion to substrate.</p>	GENERIC TYPE	VINYL ACRYLIC
	PIGMENT TYPE	TITANIUM DIOXIDE
	VOLUME SOLIDS	52.4%
	SPREAD RATE PER GALLON	VARIES WITH ROUGHNESS
	FILM THICKNESS—WET	20.0 MILS
	—DRY	10.0 MILS
	DRY TIME—TO TOUCH	30 MIN.
	—TO RECOAT	8 HOURS
	SOLVENT	WATER
	VISCOSITY	125-130 KU
ANALYSIS UPON REQUEST		
101-11 EPOXY BLOCK FILLER		101-11 WHITE
USDA ACCEPTANCE PENDING		
<p>This epoxy block filler is designed for use under two component products in areas of high abuse or high moisture such as below grade or surfaces that are exposed to repeated cleaning using high pressure water. May be used on concrete block or masonry surfaces in filling voids or surface imperfections. May be applied by brush spray or roller when a "flush" fill is required the material may be back rolled or squeegeed to remove excess material creating a smoother surface.</p>	GENERIC TYPE	POLYAMIDE EPOXY
	PIGMENT TYPE	TITANIUM DIOXIDE
	VOLUME SOLIDS	56%
	SPREAD RATE PER GALLON	VARIES WITH ROUGHNESS
	FILM THICKNESS—WET	18 MILS APPROX.
	—DRY	10 MILS APPROX.
	DRY TIME—TO TOUCH	2 HOURS
	—TO RECOAT	16 HOURS
	SOLVENT	45-187
	VISCOSITY	110-120 KU
ANALYSIS UPON REQUEST		
101-10 EPOXY CLEAR SEALER		101-10 CLEAR
USDA ACCEPTANCE PENDING		
<p>This clear sealer is designed to penetrate deeply into the concrete or wood substrate providing the necessary foundation needed to support high performance top coat systems.</p>	GENERIC TYPE	POLYAMIDE EPOXY
	PIGMENT TYPE	CLEAR
	VOLUME SOLIDS	20.4%
	SPREAD RATE PER GALLON	250 SQ. FT.
	FILM THICKNESS—WET	3.0 MILS
	—DRY	0.8 MILS
	DRY TIME—TO TOUCH	30 MIN.
	—TO RECOAT	2-4 HOURS
	SOLVENT	45-187
	VISCOSITY #4 FORD CUP	12-14 SEC.
ANALYSIS UPON REQUEST		
101-10 EPOXY CLEAR SEALER		101-10 CLEAR
USDA ACCEPTANCE PENDING		
<p>This clear sealer is designed to penetrate deeply into the concrete or wood substrate providing the necessary foundation needed to support high performance top coat systems.</p>	GENERIC TYPE	POLYAMIDE EPOXY
	PIGMENT TYPE	CLEAR
	VOLUME SOLIDS	20.4%
	SPREAD RATE PER GALLON	250 SQ. FT.
	FILM THICKNESS—WET	3.0 MILS
	—DRY	0.8 MILS
	DRY TIME—TO TOUCH	30 MIN.
	—TO RECOAT	2-4 HOURS
	SOLVENT	45-187
	VISCOSITY #4 FORD CUP	12-14 SEC.
ANALYSIS UPON REQUEST		

SURFACE PREPARATION CHART

Approximately 80% of all premature coating failure can be attributed to inadequate or incomplete surface preparation. The proper surface preparation method will remove contaminants which will interfere with coating adhesion or create a surface profile which will insure the coatings system adhesion. This selection chart is designed to assist in selection of the proper surface preparation method based on the type of substrate being coated. It also addresses the environmental exposure of the coated surface, based on generic type of coating.

- I. Select the appropriate generic family
- II. Select the surface to be coated
- III. Select the type of exposure

EXPOSURE

Black Number-
Best Recommendation

Red Number-
Alternate Recommendation

xx -
Not Recommended

Recommended Primer	Normal Environment			Chemical Environment Interior - Exterior		
	Dry Interior	Damp Interior Water Only	Exterior	Splash & Spill Short intervals	Direct Exposure Extended Periods	Continuous Immersion

M10 Acrylic Masonry Flat
M80 Acrylic Gloss Enamel

WATER BORNE ACRYLICS

Ferrous Metal	35-11	7.1 6.2	9.2 6.2	7.1 6.2	xx	xx	xx
Non-Ferrous Metal	100-10	9.1	9.1	9.1	xx	xx	xx
Poured Concrete - Block	946-11	3.5	3.5	3.5	xx	xx	xx
Plaster - Drywall	40-11	3.1	3.1	3.1	xx	xx	xx
Wood - Particle Board - Masonite	37-11	3.3	3.3	3.3	xx	xx	xx

M13 Urethane Semi-Gloss
M31 Urethane Gloss

URETHANE ALKYDS

Ferrous Metal	35-11	7.1 6.2	9.2 6.2	7.1 6.2	xx	xx	xx
Non-Ferrous Metal	100-10	9.1	9.1	9.1	xx	xx	xx
Poured Concrete - Block	946-11	3.5	3.5	3.5	xx	xx	xx
Plaster - Drywall	40-11	3.1	3.1	3.1	xx	xx	xx
Wood - Particle Board - Masonite	37-11	3.3	3.3	3.3	xx	xx	xx

139 Quick Dry Enamel
153 Electrostatic Enamel
903 Fast Finish Enamel

FAST DRY ALKYDS

Ferrous Metal	895-21	7.1 6.2	9.2 6.2	7.1 6.2	xx	xx	xx
Non-Ferrous Metal	100-10	9.1	9.1	9.1	xx	xx	xx
Poured Concrete - Block	946-11	3.5	3.5	3.5	xx	xx	xx
Plaster - Drywall	40-11	3.1	3.1	3.1	xx	xx	xx
Wood - Particle Board - Masonite	37-11	3.3	3.3	3.3	xx	xx	xx

137 Epoxy Ester Enamel
47-1 Moisture Bond Enamel

MODIFIED ALKYD ENAMEL

Ferrous Metal	35-11	7.1 6.2	9.2 6.2	7.1 6.2	xx	xx	xx
Non-Ferrous Metal	100-10	9.1	9.1	9.1	xx	xx	xx
Poured Concrete - Block	946-11	3.5	3.5	3.5	xx	xx	xx
Plaster - Drywall	40-11	3.1	3.1	3.1	xx	xx	xx
Wood - Particle Board - Masonite	37-11	3.3	3.3	3.3	xx	xx	xx

985 Acrylic Enamel

SOLVENT THINNED ACRYLIC ENAMEL

Ferrous Metal	820-21	7.1 6.2	9.2 6.2	7.1 6.2	xx	xx	xx
Non-Ferrous Metal	100-10	9.1	9.1	9.1	xx	xx	xx
Poured Concrete - Block	946-11	3.5	3.5	3.5	xx	xx	xx
Plaster - Drywall	40-11	3.1	3.1	3.1	xx	xx	xx
Wood - Particle Board - Masonite	37-11	3.3	3.3	3.3	xx	xx	xx

EXPOSURE

Recommended Primer	Normal Environment			Chemical Environment Interior - Exterior		
	Dry Interior	Damp Interior Water Only	Exterior	Soil and Soil Short Intervals	Direct Exposure Extended Periods	Continuous Immersion (Water Only)

227 Chlorinated Rubber

CHLORINATED RUBBER

Ferrous Metal	227-11	7:1 6:2	7:1 6:2	7:1 6:2	7:1	7:3	7:4
Non-Ferrous Metal	316-200	9:1	9:1	9:1	9:1	9:1	9:1
Poured Concrete - Block	227-211	3:5	3:5	3:5	9:6	9:6	9:6
Plaster - Drywall	227-11	3:1	3:1	3:1	3:1	xx	xx
Wood - Particle Board - Masonite	227-11	3:3	3:3	3:3	3:3	xx	xx

101 Regular Build Polyamide 101 Hi-Build Polyamide

POLYAMIDE EPOXY

Ferrous Metal	101-155	7:1 6:2	7:1 6:2	7:1 6:2	7:1	7:3	7:4
Non-Ferrous Metal	316-200	9:1	9:1	9:1	9:1	9:1	9:1
Poured Concrete - Block	101-11	3:5	3:5	3:5	9:6	9:6	9:6
Plaster - Drywall	111-111	3:1	3:1	3:1	3:1	xx	xx
Wood - Particle Board - Masonite	111-111	3:3	3:3	3:3	3:3	xx	xx

85 Polyester Epoxy

POLYESTER EPOXY

Ferrous Metal	101-155	7:1 6:2	7:1 6:2	7:1 6:2	7:1	7:3	7:4
Non-Ferrous Metal	316-200	9:1	9:1	9:1	9:1	9:1	9:1
Poured Concrete - Block	101-11	3:5	3:5	3:5	9:6	9:6	9:6
Plaster - Drywall	111-111	3:1	3:1	3:1	3:1	xx	xx
Wood - Particle Board - Masonite	111-111	3:3	3:3	3:3	3:3	xx	xx

138 Acrylic Epoxy Gloss

ACRYLIC EPOXY

Ferrous Metal	101-155	7:1 6:2	7:1 6:2	7:1 6:2	7:1	xx	xx
Non-Ferrous Metal	316-200	9:1	9:1	9:1	9:1	xx	xx
Poured Concrete - Block	101-11	3:5	3:5	3:5	9:6	xx	xx
Plaster - Drywall	40-11	3:1	3:1	3:1	3:1	xx	xx
Wood - Particle Board - Masonite	37-11	3:3	3:3	3:3	3:3	xx	xx

113-111 Epoxy Mastic

EPOXY MASTIC

Ferrous Metal	113-111	7:1 6:2	7:1 6:2	7:1 6:2	7:1	7:3	7:4
Non-Ferrous Metal	316-200	9:1	9:1	9:1	9:1	9:1	9:1
Poured Concrete - Block	101-10	3:5	3:5	3:5	9:6	9:6	9:6
Plaster - Drywall	111-111	3:1	3:1	3:1	3:1	xx	xx
Wood - Particle Board - Masonite	111-111	3:3	3:3	3:3	3:3	xx	xx

827 Acrylic Urethane

ALIPHATIC ACRYLIC URETHANE

Ferrous Metal	101-155	7:1 6:2	7:1 6:2	7:1 6:2	7:1	7:3	7:4
Non-Ferrous Metal	316-200	9:1	9:1	9:1	9:1	9:1	9:1
Poured Concrete - Block	101-11	3:5	3:5	3:5	9:6	9:6	9:6
Plaster - Drywall	111-111	3:1	3:1	3:1	3:1	xx	xx
Wood - Particle Board - Masonite	111-111	3:3	3:3	3:3	3:3	xx	xx

METHOD 3. PRETREATMENT BEFORE PAINTING

3.1 New or Bare Drywall

Remove all dust generated from sanding the mud joints by consecutively brooming the surface or using a dry vacuum. Any water stains or nail head stains should be sealed with Coronado product #117-11 Stain Sealer or #115-11 Stain Killer.

3.2 Recoat Drywall

Remove all dirt, dust, grease or oil by thoroughly washing with an appropriate detergent cleanser. Rinse off soap residue with clean water. Always wash walls from the bottom working upward.

Any loose or flaking paint must be removed and edges feather sanded to produce a smooth, uniform surface. Glossy surfaces must be dulled with sand steel wool or a commercial de-glosser. Coatings containing strong solvents should be tested for coating compatibility on previously coated surfaces.

3.3 New or Bare Wood

Sand surface to remove all pencil marks, dirt, grade stamps, smudges, scratches or spongy surface wood cells. Remove all oil spots, sap or pitch by wiping with clean rags dipped in Xyol Thinner. (Note-Dispose of solvent saturated rags properly to avoid spontaneous combustion). Fill all cracks, holes or voids using appropriate filling compound and sand smooth. Remove all dust and sanding residue by wiping with a tack cloth.

3.4 Recoat Wood

Remove all dirt, dust, grease or oil by thoroughly washing with an appropriate detergent cleanser. Rinse off soap residue with clean water. Wax contaminants must be removed with a commercial de-waxer.

Any loose or flaking paint must be removed and edges feather sanded to produce a smooth, light adhering, uniform surface. Glossy surfaces must be dulled with sandpaper, steel wool or a commercial de-glosser. Coatings containing strong solvents should be tested for coating compatibility on previously coated surfaces.

3.5 New Plaster & Concrete

New surfaces should be allowed to cure 28 days prior to applying a coating system. Any surface chalk residue must be removed by thoroughly scrubbing with a stiff bristled floor brush and clean water. Patch all voids and cracks using appropriate patching material. Check all surfaces for moisture using a moisture meter, prior to applying coating system.

3.6 Recoat Plaster & Concrete

Remove all dirt, dust, grease or oil by thoroughly washing with an appropriate detergent cleanser. Rinse off soap residue with clean water. Always wash walls from the bottom working upward. Any loose or flaking paint must be removed and the edges feather sanded to produce a smooth, uniform surface. Glossy surfaces must be dulled with sandpaper, steel wool or a commercial de-glosser. Coatings containing strong solvents should be tested for coating compatibility on previously coated surfaces.

METHOD 8. CONCRETE PRETREATMENT

Allow new concrete to cure for 28 days before etching and coating.

8.1 Acid Etching

All surfaces to be coated should be etched with a solution of one part Coronado Sur-Prep IV reduced with two parts water. Apply this to the floor at approximately 100 square feet per gallon. This will dissolve the latent silicates and any other cement contaminants on the floor area. Also, it opens up the surface to permit the floor coatings to penetrate into the floor surface. After thoroughly washing the floor, pick up the residue with a wet or dry commercial vacuum cleaner. If proper etch has been accomplished, the concrete will have a surface texture like #1 or #2 sandpaper.

It is important now to neutralize the floor by using a solution of 5% Sur-Prep I mixed with 95% water. Pick up this residue solution with a wet or dry vacuum and dry up the floor completely.

8.2 Mechanical Abrasion

This type of preparation will completely remove all existing coatings plus the tolerance that occurs on the concrete surface, and will create a surface profile which is desirable for coating application. Also the surface remains dry which speeds up the coating application. Listed below are various types of equipment used in this cleaning method.

Black Track - Wheelabrator - Frye Inc. - Mishawaka, IN 219/255-2141

Turbo Blast - N.S.P. Inc. - Comstock Pk., MI 616/784-5401

Road Peen - 3M Cleaning Products Div. - St. Paul, MN

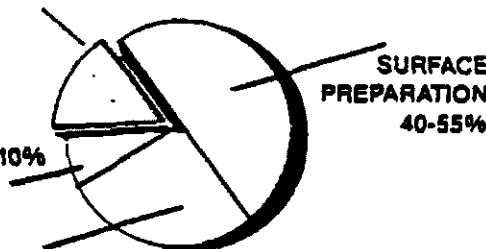
HELPFUL INFORMATION

AVERAGE COATING SYSTEM COSTS

COATING MATERIAL 10-15%

CLEAN UP 5-10%

APPLICATION 35-45%



TO VISUALIZE CORROSION EFFECTS, CONSIDER...

"Conversion" of a 1" cube of steel results in 20 cubic inches of rust.

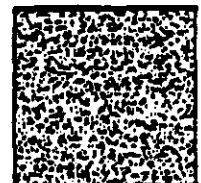
One cubic inch steel, plus air and water = 20 times the original volume in rust.



WATER
AND
AIR



20x
IN RUST
VOLUME



COATING SYSTEM COST PER SQUARE FOOT PER YEAR

Generic Type of Coating	Cost Per Sq. Foot		Total 3 Coat System	+ Approp. Years Service	Cost per sq. ft. per year of service
	Finish	Primer			
Urethane Alkyd M21 Series-MT3 Series	\$7	\$3.7	15.1	9	1.8
Quick Dry Enamel 139 Series	4.4	4.2	13.0	8	1.6
Acrylic Gloss M80 Series	8.6	4.9	22.1	10	2.2
Chlorinated Rubber 227 Series	9.9	6.2	30.3	12	2.5
Polyamide Epoxy (Regular "C" Series Plus 101-250	8.6	6.7	23.9	12	1.
Polyamide Epoxy (Hi-Build 101 Series Plus 101-252	25.6	6.7	57.9	14	4.1
Epoxy Mastic 113-111	21.2	21.2	60.6	20	3.0
Aliphatic Urethane 827 Series	14.9	6.7	36.5	16	2.2

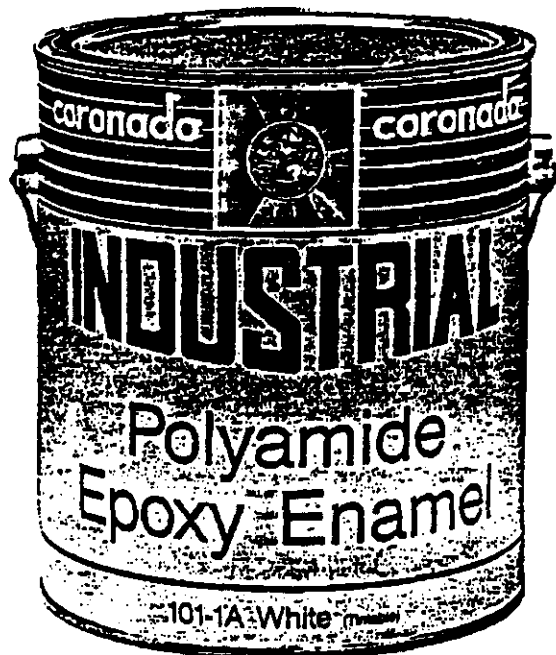
* Service life is based on normal atmospheric exposure.

SURFACE PREPARATION COST PER SQUARE FOOT

SSPC-SP-1 Solvent Wiping	.08 - .12 per sq. ft.
SSPC-SP-1 Pressure Cleaning	.06 - .08 per sq. ft.
SSPC-SP-1 Steam Cleaning	.06 - .08 per sq. ft.
SSPC-SP-2 Hand Tool Cleaning	.30 - .45 per sq. ft.
SSPC-SP-3 Power Tool Cleaning	.40 - .50 per sq. ft.
SSPC-SP-7 Brush-Off Blast Cleaning	.30 - .45 per sq. ft.
SSPC-SP-6 Commercial Blast Cleaning	.60 - .85 per sq. ft.
SSPC-SP-10 Near White Metal Blast Cleaning	.90 - \$1.10 per sq. ft.
SSPC-SP-5 White Metal Blast Cleaning	\$1.15 - \$1.30 per sq. ft.

APPLICATION COST PER SQUARE FOOT

Brush	.19 - .25 per sq. ft.
Roller	.14 - .18 per sq. ft.
Airless Spray	.07 - .13 per sq. ft.
Air Atomized Spray	.08 - .15 per sq. ft.



- COMPLETE SERVICE
- COMPLETE PRODUCT LINE
- COMPLETE PROTECTION
- COMPLETE COLOR SELECTION
- COMPLETE TECHNICAL DATA

ADDITIONAL TECHNICAL DATA

The following technical data is available through any Coronado Distributor, sales representative or from Coronado Industrial Coatings in Edgewater, FL.

CORROSION EXPOSURE CHART (IMA-2)
COATINGS COMPARISON CHART (IMA-3)
CORONADO INDUSTRIAL COLOR CHART (IMA-10)
PRIMER CHART (IMA-300)
SURFACE PREPARATION CHART (IMA-202)
SURFACE AREA AND GALLONAGE COMPUTER (IMA-120)
WET FILM THICKNESS GAUGE (IMA-1202)
GLAZE FINISHES CHART (IMA-13)



coronado paint company

EDGEWATER, FLORIDA, U.S.A. 32032-0308

MSDS 15741

MATERIAL SAFETY DATA SHEET						OMN Approval No. 45-H0138	
SECTION I	MANUFACTURER'S NAME AND FSCM (Federal Supply Code for Manufacturers)					EMERGENCY PHONE NO.	
	Coronado Paint Company FSCM 2851					904-428-6461	
	ADDRESS (Number, Street, City, State, and ZIP Code)						
	308 Old County Road Edgewater, FL 32032						
	CHEMICAL NAME AND SYNONYMS					TRADE NAME AND SYNONYMS	
SECTION II - HAZARDOUS INGREDIENTS	NA					Industrial Epoxy	
	CHEMICAL FAMILY					FORMULA	
	Epoxy-Polyamide Copolymer					101-1A + B White	
	FEDERAL STOCK NUMBER (FSN)		GROSS WEIGHT (LBS)		OUTSIDE PACKAGE DIMENSIONS (Inches)		
	NA NA		23.5		7.5" Height X 6.5" Diameter		
MIL-STD-131, NATIONAL FIRE PROTECTION ASSOCIATION SYMBOL SIGNAL							
FLAMMABILITY <u>3</u> HEALTH <u>1</u> REACTIVITY <u>1</u> SPECIFIC HAZARD <u>0</u>							
SECTION II - HAZARDOUS INGREDIENTS	PAINTS, PRESERVATIVES, AND SOLVENTS	%	THRESHOLD LIMIT VALUE (Units)	ALLOYS AND METALLIC COATINGS	%	THRESHOLD LIMIT VALUE (Units)	
	No Hazard	25.5		BASE METAL			
	CATALYST			ALLOYS			
	No Hazard	31.3		METALLIC COATINGS			
	Methylisobutyl Ketone	5.4	100 ppm	FILLER METAL			
	Toluene	10.0	100 ppm	PLUG COATING OR CORE PLUG			
	Xylene	26.1	100 ppm	OTHERS			
	ADHESIVES						
	OTHERS						
	HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES					%	THRESHOLD LIMIT VALUE (Units)
SECTION III - PHYSICAL DATA	BOILING POINT (°F.)		235		SPECIFIC GRAVITY (H ₂ O=1)		1.197
	VAPOR PRESSURE (mm Hg.)		17		PERCENT VOLATILE BY VOLUME (%)		58.7
	VAPOR DENSITY (AIR=1)		3.2		EVAPORATION RATE (nButyl Acetate=1)		1.17
	SOLUBILITY IN WATER		negligible				
	APPEARANCE AND ODOR						
SECTION IV - FIRE AND EXPLOSION HAZARD DATA	White opaque liquid, odor characteristic of solvents used.						
	FLASH POINT (Method used)			FLAMMABLE LIMITS	LOWER EXPLOSIVE LIMIT	UPPER EXPLOSIVE LIMIT	
	45°F (SETA)				1.3	7.55	
	EXTINGUISHING MEDIA						
	Carbon dioxide, dry chemical, foam						
SPECIAL FIRE FIGHTING PROCEDURES							
A self-contained breathing apparatus should be used.							
UNUSUAL FIRE AND EXPLOSION HAZARDS							
Vapors may form explosive mixtures with air.							

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SECTION V HEALTH HAZARD DATA	THRESHOLD LIMIT VALUE		
	250 ppm		
	EFFECTS OF OVEREXPOSURE		
	Skin - prolonged or repeated exposure may cause irritation. Eyes - may cause irritation and redness.		
SECTION VI REACTIVITY DATA	EMERGENCY AND FIRST AID PROCEDURES		
	Remove excess, wash with soap and copious water. Emulsify with vinegar (5% Acetic Acid) if necessary. Rinse with water. Eye - rinse with water for 15 minutes. See doctor if irritation or redness persists.		
	STABILITY	UNSTABLE	CONDITIONS TO AVOID
		X	Do not mix water with uncured material.
SECTION VII SPILL OR LEAK PROCEDURES	INCOMPATIBILITY (Materials to avoid)		
	Water or other hydroxy) containing materials.		
	HAZARDOUS DECOMPOSITION PRODUCTS		
	none		
SECTION VIII - SPECIAL PROTECTION INFORMATION	HAZARDOUS POLYMERIZATION	MAY OCCUR	CONDITIONS TO AVOID
		WILL NOT OCCUR	X
	STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED		
	Broadcast vermiculite or other absorbant material. Scoop up. Scrub with 5% acetic acid to emulsify. Rinse with water.		
SECTION IX SPECIAL PRECAUTIONS	WASTE DISPOSAL METHOD		
	Place in closed container and remove to approved landfill or burn in adequate incinerator.		
	RESPIRATORY PROTECTION (Specify type)		
	VENTILATION		
SECTION X TRANSP. DATA	LOCAL EXHAUST	SPECIAL	
	good general ventilation usually adequate		
	MECHANICAL (General)	OTHER	
	PROTECTIVE GLOVES		
SECTION XI OTHER PRECAUTIONS	polyethylene or rubber		EYE PROTECTION
			safety glasses with side shields
	OTHER PROTECTIVE EQUIPMENT		
	clean, long leg and long sleeve work clothes.		
SECTION XII OTHER PRECAUTIONS	PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING		
	Use good housekeeping; do not store in unventilated or excessively hot (over 120°F) areas.		
	OTHER PRECAUTIONS		
SECTION XIII OTHER PRECAUTIONS	PROPER SHIPPING (Article) NAME		DOT CLASSIFICATION
	PAINT, FLAMMABLE LIQUID		FLAMMABLE LIQUID
	DOT LABEL	DOT MARKING	EMERGENCY ACCIDENT PRECAUTIONS AND PROCEDURES
	YES	YES	
SECTION XIV OTHER PRECAUTIONS	DOT PLACARD		PRECAUTIONS TO BE TAKEN IN TRANSPORTATION
	over 1000 lb		Mark rail shipments "DO NOT HUMP"

MATERIAL SAFETY DATA SHEET						OMB Approval No. 45-R0118			
SECTION I	MANUFACTURER'S NAME AND FSCM (Federal Supply Class for Manufacturers)					EMERGENCY PHONE			
	Coronado Paint Company FSCM 2851					904-428-6461			
	ADDRESS (Number, Street, City, State, and ZIP Code)								
	308 Old County Road Edgewater, FL 32032								
	CHEMICAL NAME AND SYNONYMS					TRADE NAME AND NUMBER			
SECTION II - HAZARDOUS INGREDIENTS	NA					Industrial Epoxy			
	CHEMICAL FAMILY					FORMULA			
	Epoxy-Polyamide Copolymer					101-11 Block Filler			
	FEDERAL STOCK NUMBER (FSN)		GROSS WEIGHT (LBS)		OUTSIDE PACKAGE DIMENSIONS (Inches)				
	NA NA		27.5		7.5" Height X 6.5" Diameter				
MIL-STD-128 NATIONAL FIRE PROTECTION ASSOCIATION STD 36M SIGNAL									
FLAMMABILITY 3 HEALTH 1 REACTIVITY 1 SPECIFIC HAZARD 0									
SECTION III	PAINTS, PRESERVATIVES, AND SOLVENTS		%	THRESHOLD LIMIT VALUE (Units)	ALLOYS AND METALLIC COATINGS		%	THRESHOLD LIMIT VALUE (Units)	
	No hazard		59.0		BASE METAL				
	Catalyst				ALLOYS				
	No hazard		14.7		METALLIC COATINGS				
	nButyl Acetate		1.7	100 ppm	FILLER METAL				
	Toluene		10.0	100 ppm	PLUS COATING OR GEL FILL				
	Xylene		4.5	100 ppm	OTHERS				
	ADDITIONALS								
	OTHERS								
	HAZARDOUS MIXTURES OF OTHER LIQUIDS, SOLIDS, OR GASES							%	THRESHOLD LIMIT VALUE (Units)
SECTION III	BOILING POINT (°F)		235		SPECIFIC GRAVITY (H ₂ O=1)		1.562		
	VAPOR PRESSURE (mm Hg)		17		PERCENT VOLATILE BY VOLUME (%)		29.1		
	VAPOR DENSITY (AIR=1)		3.2		EVAPORATION RATE (nButyl Acetate=1)		1.17		
	SOLUBILITY IN WATER		negligible						
	APPEARANCE AND ODOR								
SECTION IV - FIRE AND EXPLOSION HAZARD DATA	White opaque liquid, odor characteristic of solvents used.								
	FLASH POINT (Method used)			FLAMMABLE LIMITS		LOWER EXPLOSIVE LIMIT		UPPER EXPLOSIVE LIMIT	
	45°F (SETA)					1.3		7.55	
	EXTINGUISHING MEDIA								
Carbon dioxide, dry chemical, foam									
SPECIAL FIRE FIGHTING PROCEDURES									
A self-contained breathing apparatus should be used.									
UNUSUAL FIRE AND EXPLOSION HAZARDS									
Vapors may form explosive mixtures with air.									

SECTION V HEALTH HAZARD DATA	THRESHOLD LIMIT VALUE 200 ppm		
	EFFECTS OF OVEREXPOSURE Skin - prolonged or repeated exposure may cause irritation. Eyes - may cause irritation and redness. MSDS # 15704		
	EMERGENCY AND FIRST AID PROCEDURES Remove excess, wash with soap and copious water. Emulsify with vinegar for 15 minutes. See doctor if irritation or redness persists.		
SECTION VI REACTIVITY DATA	STABILITY	UNSTABLE X	CONDITIONS TO AVOID Do not mix water with uncured material
		STABLE	
	INCOMPATIBILITY (Materials to avoid) Water or other hydroxyl containing materials.		
	HAZARDOUS DECOMPOSITION PRODUCTS none		
SECTION VII SPILL OR LEAK PROCEDURES	HAZARDOUS POLYMERIZATION	MAY OCCUR WILL NOT OCCUR X	CONDITIONS TO AVOID
	STEPS TO BE TAKEN IN CASE MATERIAL IS RELEASED OR SPILLED Broadcast vermiculite or other absorbant material. Scoop up. Scrub with 5% acetic acid to emulsify. Rinse with water.		
	WASTE DISPOSAL METHOD Place in closed container and remove to approved landfill or burn in adequate incinerator.		
SECTION VIII - SPECIAL PROTECTION INFORMATION	RESPIRATORY PROTECTION (Specify type)		
	VENTILATION	<div style="display: flex; justify-content: space-between;"> <div>LOCAL EXHAUST good general ventilation usually adequate</div> <div>SPECIAL</div> </div> <div style="display: flex; justify-content: space-between;"> <div>MECHANICAL (General)</div> <div>OTHER</div> </div>	
	PROTECTIVE GLOVES polyethylene or rubber	EYE PROTECTION safety glasses with side shields.	
	OTHER PROTECTIVE EQUIPMENT Clean, long leg and long sleeve work clothes.		
SECTION IX SPECIAL PRECAUTIONS	PRECAUTIONS TO BE TAKEN IN HANDLING AND STORING Use good housekeeping; do not store in unventilated or excessively hot (over 120°F) areas.		
	OTHER PRECAUTIONS		
SECTION X TRANSP DATA	PROPER SHIPPING (AHS) NAME PAINT, FLAMMABLE LIQUID		DOT CLASSIFICATION FLAMMABLE LIQUID
	DOT LABEL YES	DOT MARKING YES	EMERGENCY ACCIDENT PRECAUTIONS AND PROCEDURES
	DOT PLACARD	PRECAUTIONS TO BE TAKEN IN TRANSPORTATION over 1000 lbs Mark rail shipments "DO NOT HUMP"	

APPENDIX 6A

HANFORD FIRE DEPARTMENT EMERGENCY EQUIPMENT

APPENDIX 6A

HANFORD FIRE DEPARTMENT EMERGENCY EQUIPMENT

This appendix contains a listing of emergency response equipment maintained by the Hanford Fire Department. This equipment is available to respond to emergencies at the 305-B Storage Facility if additional equipment beyond that maintained at 305-B Storage Facility is required to respond to emergencies. This listing includes equipment contained in the Hanford Fire Department Hazardous Materials Response Vehicle and Hazardous Materials Response Trailer and emergency response resources maintained by the Hanford Fire Department.

Hazardous Materials Response Vehicle Equipment Inventory

1		
2	1	Compass – hand-held
3	1	Compass – mounted
4	2	Hand lanterns – rechargeable
5	1	Micro scanner, heat detector
6	1	Polaroid camera
7	1	Weather Station
8	6	SCBA with 1-hour bottles
9	4	30-Minute SCBA bottles
10	1	Earmark base station with 6 Earmark individual units
11	30	Plug N'Dike
12	6	Plug N'Dike Kits – Epoxy
13	4	Danger Spill Signs
14	3	Plug Rugs (5, N, L)
15	1	Tool Box – assorted non-sparking tools
16	1	A-1 HAZNAT response kit
17	1	A-2 HAZMAT response kit
18	2	Dozen rubber gloves
19	4	Dozen canning gloves
20	1	Thermal tarp
21	2	Pair binoculars
22	4	Tank sealing kits – large
23	6	HAZMAT suits – encapsulated
24	3	Roll warning tape
25	2	Electrical tape, 3 duct, and 6 masking
26	4	Packages gloves
27	1	Drager multi-gas detector with tubes
28	17	Dozen surgeon gloves
29	1	Portable Computer base

Hazardous Materials Response Trailer Equipment Inventory

2	2	Electrical cord reels
3	2	5 gallon buckets Plug N'Dike
4	4	Brook – 2 large, 2 small
5	2	Proximity suits
6	3	Ropes
7	3	Radiation marking, robes
8	3	Tarps
9		Rubber boots
10		Leather gloves
11	3	Shovels
12	1	Roll screen
13	2	Roll masking tape
14	10	Metal buckets; 4 large and 6 small
15	2	Five gallon buckets Sodasorb
16	10	Rolls Visqueen 6 mil 20' x 100'
17	2	Boxes 39" x 54" plastic bags
18	4	Boxes heavy-weight rubber gloves
19	1	Box wooden blocks
20	2	Emergency reflectors
21	1	Saws-all
22		Miscellaneous tools (drills, pipe wrenches, hammer, etc.)
23	5	Portable lights
24	8	Miscellaneous electrical adapters
25	2	Pair electrical gloves
26	1	Drill – 5/8"
27	3	Plug rug
28	4	Bags absorbent – Safstep
29	1	Generator/electric start
30	1	Portable decontamination shower

Reference Materials

33	1	HAZMAT information
34	1	Manufacturers Safety Data Sheet
35	1	HAZMAT Spill Control Handbook
36	1	Emergency Action Guides
37	1	Selection of HAZMAT Clothing
38	1	Merck Index
39	1	Industrial Fire HAZMAT Handbook
40	1	Chemical Dictionary
41	1	Fire Protection on HAZMAT
42	1	Emergency Response
43	1	HAZMAT Handbook
44	1	HAZMAT Injuries Handbook
45	1	Common Sense Approach to Hazardous Materials Handbook